COAL AGE

The Weekly Journal of the Coal and Coke Industries

Volume 18 NEW YORK, THURSDAY, SEPT. 16, 1920 Number 12

WIDESPREAD dissatisfaction with the high prices for coal has given rise to a general questioning of the good faith of the coal industry and a doubt of the fundamental honesty of those who represent it. No commodity can rise in price as has soft coal in the past six months without the producers and dealers being subjected to the charge of manipulation and profiteering.

Of producers, sales agents, jobbers and wholesalers—those who produce, sell and distribute bituminous coal—there are today not less than 15,000 companies and individuals, and among so many there cannot be other than a large number of those whose rules of business conduct contain no creed other than that of "grabbing while the getting is good." Every industry, every group, contains its quota of people of that type, for all are but human, and humankind is alike everywhere.

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WHAT the consuming public does not understand, however, is the condition or set of conditions that has permitted the weeds to grow and the undesirable fruit to ripen in the field of the legitimate coal industry. No friend of the coal business should pass by a single opportunity to bring home to this same public the fact that every industry, and particularly those supplying universal necessities, is passing through stages of post-war adjustment in many ways similar to that of coal.

That we can point with more or less certainty to the things that are wrong with the coal industry and can talk about the necessity of stabilization and regulation within the industry or from without it proves nothing more than that we know more about the ills of coal production and distribution than we do about those of other basic industries. The important thing to bear in mind is that the men who were in the coal business last year and who expect to be there next year are as interested in working out the proper solution of the present problem as is the public in having cheaper coal, and the present abnormal condition as to prices and supply will be corrected by natural processes if time be allowed.

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IN FIXING responsibility for the shortage and high prices of 1920 we must differentiate between the ultimate or basic cause and the present limiting factors. The actual cause of this shortage has been lack of sufficient stocks of coal in the hands of consumers—producers cannot and do not attempt to carry stocks of soft coal—and responsibility for this lack of stocks can be definitely traced back to the consumers who in 1919 rather than buy, almost universally used their storage coal to the point of depletion.

The supply produced and delivered since April has been sufficient to meet the actual necessities of the country for day-to-day consumption, but has not been adequate to fill the additional demand for storage, which consumers unwisely burned in 1919 and now are anxious to replace. This intense demand in the summer for storage coal is in itself abnormal and is the fundamental underlying cause of the present high prices.

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THE consumer will not dispute this explanation of underlying causes, but he always comes back with the query as to why the coal operators do not supply the coal which the country is demanding, and he always has a doubt as to why prices should be so very high. The answer to both of these queries is simple—the soft-coal mines can produce no more than the railroads in the bituminous region are able to haul away.

Production for months has been solely limited by lack of transportation, except where strikes have temporarily served further to constrict it. Given more transportation, there will at once be more coal. Apparently every scheme has been tried to increase the transportation of coal, even the use of open-top cars to freight other than coal has been denied, but the rate of output has not yet reached the desired level and certainly has not maintained it long enough to meet the demand.

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PRICES mounted and stayed up because buyers bid for the coal. Some buyers seem willing to go beyond all limits in bidding for what they urgently need or imagine they must have. Examples by the score could be cited in which the consumer of bituminous coal has placed his orders with several jobbers or buyers and has thus bid against himself.

As an example may be cited the manufacturer in New York State who placed an order with a certain well-known responsible middle house for 10,000 tons of central Pennsylvania coal to be delivered during the past summer. This house sent a buyer to Johnstown, Pa., who made an offer of $8 to a producer for this tonnage. The deal was about to be closed when the seller asked to be relieved of his bargain promise because he had just been offered and later accepted $9.50 for his coal.

The buyer on his return to New York was advised by the manufacturer that he need not concern himself about that order, for the contract had been placed by another buyer. It soon developed that the two buyers who had been bidding for the self-same consignment of coal were both the agents of this one manufacturer, who was in consequence compelled to pay $1.50 a ton more for his coal than it could otherwise have been purchased for. His over-anxiety cost him $15,000.

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WHEN consumers are as eager to pay high prices as they have recently been some one is going to charge them a fancy price and if necessary will even open a mine to get coal for that purpose. When in April and May the supply of railroad cars was, because of the switchmen's strike, so limited that not enough coal was being produced to meet even current consumption, the regular operator found that with his mines running but

two or three days a week, he could not fill his contracts.

The consumer, promptly sensing trouble, placed orders with coal buyers, and the ball started to roll. With each jump in the price another score of individuals felt justified in reopening old "gopher holes," wagon mines, country banks and abandoned pits. In the whole of the Appalachian coal field, from northern Pennsylvania to Birmingham, coal beds outcrop on the hillsides, and all the equipment that is required for a coal-mine is a few tools, powder and a mine car. Throughout the Middle West, where the coal beds are below the surface, there are many shallow openings that are quickly brought to a producing stage when prices go up and as quickly are closed when prices go down.

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WHEN the price passed the $5 line every citizen of a coal-mining community was a prospective coal operator, and by the time $10 was reached most were such in fact. Labor to mine the coal in these mushroom operations was drawn from the regular mines by higher and higher wages and bonuses and cars were obtained by making requisition on the railroads, which in turn supplied them by lessening the number delivered to the regularly operated, properly equipped and economically conducted mines.

The bonanza operations had no contracts and hence have been able to exact the top of the market for their product, to the despair of the real operator. Progressively drawing labor away from mines which had contracts and regular business, cutting down the capacity and thus the car ratings of the regular mines, increasing their own capacity at the same time, the wagon mines and small "fair-weather" operations have grown to the point where they are in many fields a sizable element in the trade of that region.

There is no economic justification for their existence as railroad-car shippers, for they make poor use of transportation, detaining cars longer than the larger operations; they generally load much poorer coal both as to quality and as to preparation, and they are wasteful of man power both because the average daily output in tons per man per day is less in these unequipped mines largely owing to the fact that coal after its production has to be loaded in wagons, hauled long distances over poor roads and shoveled into railroad cars and that the coal worked is often abnormally thin, dirty or hard and would not be considered workable in normal times. Furthermore there is the objection to wagon mines that the high wages paid the mine labor does not induce continuous work. The miner is induced to accept employment in a wagon mine because he can make as much there in one day as he can in two or more days at the regular scale paid at a standard operation.

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HOW the metamorphosis of a country bank into a wagon mine can affect trade is shown by the experience of one town in Illinois. A number of small operations in the immediate neighborhood of this town had for years supplied the coal by direct haul from the mine mouth to consumers' bins. When prices reached a certain point some enterprising citizens bought all the small local mines, ordered railroad cars and, forsaking the local market entirely, entered the free-coal market and realized handsomely on their investment.

The consumers in the town were not disposed to pay the fancy prices offered by the outside world and some of the old-line companies found it necessary to protect the community by shipping coal in from other mines at a distance. Thus were railroad cars used to carry coal away from trade which could be supplied without cars while other cars were taken from useeful trade elsewhere to fill the gap.

Small Mines and Large

TO THE UNINITIATED the existence of small, ill-equipped mines alongside big ones is a perpetual surprise. In fact, some coal men otherwise well posted find the fact hard to explain, but the answer is not difficult. The small mine succeeds because it is so small. As soon as it extends it can no longer in normal times prove profitable unless it purchases the equipment that the larger mine always possesses and moves thereby into the large-mine class.

The small mine has almost invariably a short haul to the railroad tipple. Most small operations manage to keep in a strongly competitive condition so long as the haul does not exceed a half mile. Somewhere beyond a half mile it becomes necessary to have mechanical haulage and big cars. The mule will serve for a shorter distance and do good work. When longer distances are to be traversed the transportation below ground becomes a difficult problem and large units are required—bigger trips and longer, with heavier track and better traveling ways. Only electric, pneumatic or gasoline traction will fill the larger needs of a mine with ramifications extending from a half mile to perhaps five miles from the shaft or portal.

The small mine is ventilated readily. It interposes less resistance to the passage of air. A little coal burned on a rude grate with natural ventilation will supply all the air current needed. Being near the crop the small mine is nearly always free of gas and safety lamps and daily inspections—considerable drains monetarily which many large mines have to meet daily in their operations —are unnecessary.

Drainage is often natural also, for a small mine would not be opened unless this condition was assured from the first. Moreover the supervision of the mine is easy. Being temporary the small operation needs less supplies than one that has had a longer life. Timber lasts longer because no fungus has developed to cause decay. Props are usually easy to obtain because the little mine has not been in operation long enough to denude the wood lots adjacent of the timber needed for operation, and the transportation of the necessary wood supports is therefore relatively inexpensive.

All these things make it legitimately possible to operate a small mine having a railroad tipple in competition with a large mine. The question of machine mining is partly solved in the small mine by the fact that the unions have succeeded in keeping the differential between pick and machine mining so small as to make it cover little more than the charges for power, interest, depreciation and obsolescence.

Furthermore, the small mine frequently can get along without the erection of houses which at the rents which the union permits to be charged are unprofitable instead of a source of income. A large plant which must draw men from points far and near must have not only houses but well-appointed buildings for all kinds of sociological adjuncts which the small mine need not have. The miners live in their own homes, make their own congenial environments and thus save the operator much expense.

Lens Coal Mine Reopens

A small shipment of coal left one of the pitheads at Lens, France, Wednesday, Sept. 8. This coal was the first that had been taken out of the Lens mines since they were flooded by the Germans during the war.

J. K. Dering Says Coal Men Raised Only $20,000

Replying to charges by Governor Cox that an attempt had been made to levy a Republican campaign assessment of $80,000 on certain coal operators, J. K. Dering, named by the Governor as one of the principals, in a statement made public in Chicago Sept. 6 said: "We never held any such meeting as Governor Cox described. The committee of which I was chairman met, but we never assembled even the committee alone in the Auditorium Hotel. Generally the committee met in my office and generally it was I who had to run around to the coal men and pry the money out of them. We raised between $18,000 and $20,000 and turned it over to Fred W. Upham, treasurer of the Republican National Committee."

Representative Esch Defeated in Wisconsin Primaries

Representative John J. Esch of La Crosse, Wis., co-author with Senator Cummins of Iowa, of the recently enacted railroad bill, was defeated for renomination from the Seventh Wisconsin district, according to returns from the state-wide primary of Sept. 7. His victorious opponent was Joseph E. Beck, of Viroqua, who was supported by Senator Robert M. La Follette.

Governor Allen to Campaign in Three States

Governor Henry J. Allen of Kansas has accepted the invitation of the Republican National Committee to speak in Indiana, Ohio and New Jersey from Oct. 10 to 15, inclusive.

I. C. C. Expedites Return of Rolling Stock

Efforts of the railroads to have their own freight cars returned to them is bearing fruit, largely because of the co-operative orders which have been issued by the Car Service Commission of the Interstate Commerce Commission. When the roads appealed to the Interstate Commerce Commission some time ago to exercise its emergency powers to expedite the movement of coal and grain cars, some operators said that it was not good railroading. Redistribution of that equipment has gone on steadily meantime and the situation is much improved over three months ago. With the car movement records being established by many of the roads this is one of the most favorable developments since the roads were returned to private control on March 1.

Deny Reported British Coal Deal

With the arrival in London of Scott Hindley, commercial adviser to the British Coal Controller, an official statement has been issued to the effect that the report that Mr. Hindley had been sent to America to purchase large coal supplies for the Government is entirely without foundation.

NEWS BRIEFS

Terse Items Chronicling Events of Interest to the Industry

New York Transit Company Has Coal for Only Four Days

Public Service Commissioner Nixon announced that the public utilities of New York City had on hand Sept. 7, 338,977 tons of soft coal, a decrease of 4,000 tons in a week. It was pointed out at the commissioner's office that the usual supply at this season is 400,000 tons and by Oct. 1 this amount should be doubled. The Interborough Rapid Transit Co. had a supply for only four days, and the B. R. T. for eleven days.

Freight-Car Movement Reaches Pre-War Level

Railroads of the United States have attained the pre-war level in the movement of loaded freight cars, it was stated Sept. 7 by the Car Service Commission of the American Railway Association. During the week ended Aug. 21 the railroads moved 964,836 loaded cars, the largest movement during any one week since the Government relinquished control and exceeding by over 2,000 the number moved in the preceding week. This movement is only approximately 12,000 cars behind the largest movement during July, 1918, when the roads were operating at their highest point of efficiency. The roads at that time were under Federal control and individual ownership of cars was not considered.

Tumulty Advises Coal Men to Appeal to Car Commission

The Independent Coal Dealers' Association of Chicago appealed to Secretary Tumulty to obtain the support of the White House for their plea for priority orders allowing Eastern coal to come into Chicago. According to William O'Rourke, secretary of the association, there is "hardly an ounce of coal" in coal dealers' yards in Chicago. He declared the situation worse than it was last winter. Secretary Tumulty wired a reply directing the association to appeal to the Chicago Car Service Commission, of which J. J. Pelley is chairman.

Allied Delegates to Confer on Payment for German Coal

British, French, Italian and German delegates have arrived at Stresa, Italy, for a conference at which are to be arranged the conditions of payments and advances to be made to Germany for the delivery of coal to the allies.

Car Commission Reorganized as Car Service Division

Thomas DeWitt Cuyler, chairman of the Association of Railway Executives, announces that at the association's Chicago meeting the name of the Car Service Commission in Washington was changed to the Car Service Division of the American Railway Association, and that it had been reorganized. W. L. Barnes, superintendent of transportation of the Chicago, Burlington & Quincy R.R., has been appointed executive manager, reporting to Daniel Willard, president of the Baltimore & Ohio R.R., as chairman of the Advisory Committee of the Association of Railway Executives.

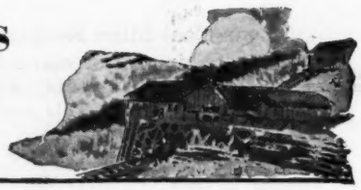
Gompers Urges Campaign to Abolish Industrial Court

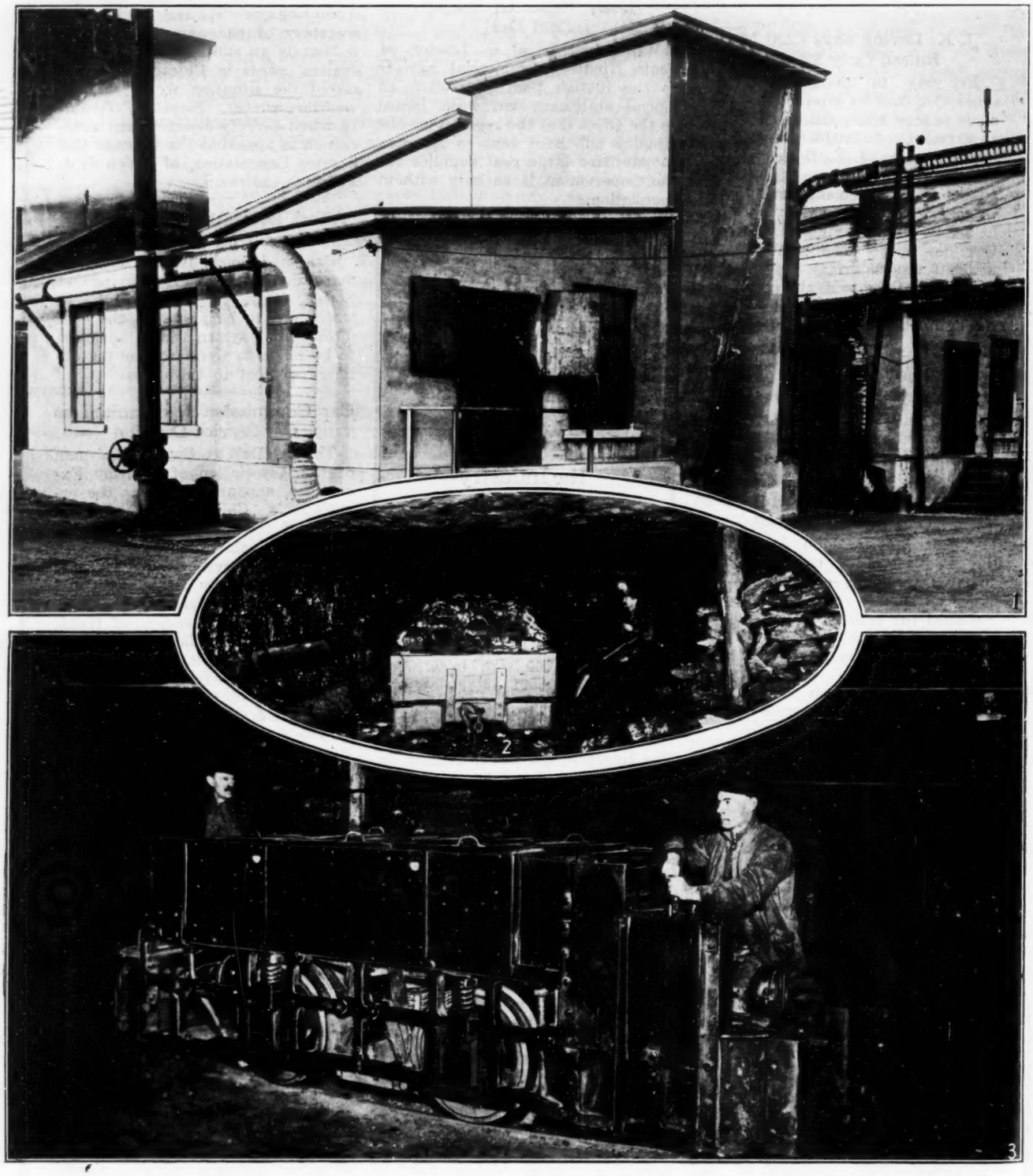
Denouncing the Court of Industrial Relations Law of Kansas as a vicious measure designed to establish compulsory labor, Samuel Gompers, president of the American Federation of Labor, in a letter to the Central Labor Union of the State of Kansas urges the holding of a conference to outline a statewide campaign for the abolition of this law.

Silesian Situation Menaces Coal Agreement

German peace delegates in Paris, says a Berlin wireless communication, have handed a note to the Peace Conference calling attention to the situation in upper Silesia. Conditions are declared to be growing worse and making the impracticability of carrying out of the coal delivery obligation more imminent.

Through the Coal Fields With a Camera





Mechanical Haulage and Good Air Have Eased the Miner's Toil

1. A CONCRETE FANHOUSE OF THE KINGSTON COAL CO., KINGSTON, PA.

This fan supplies air to the No. 4 colliery. It is a Vulcan 8 x 25 ft. machine driven by a Uniflow engine. Note the cars with which the steam pipes have been insulated. In too many plants this feature of economy is not sufficiently emphasized.

2. A NEEDLESS DELAY AT THE ROOM FACE

This picture illustrates a typical and sometimes avoidable delay. The miner is waiting for an empty. Meanwhile he takes a "snack."

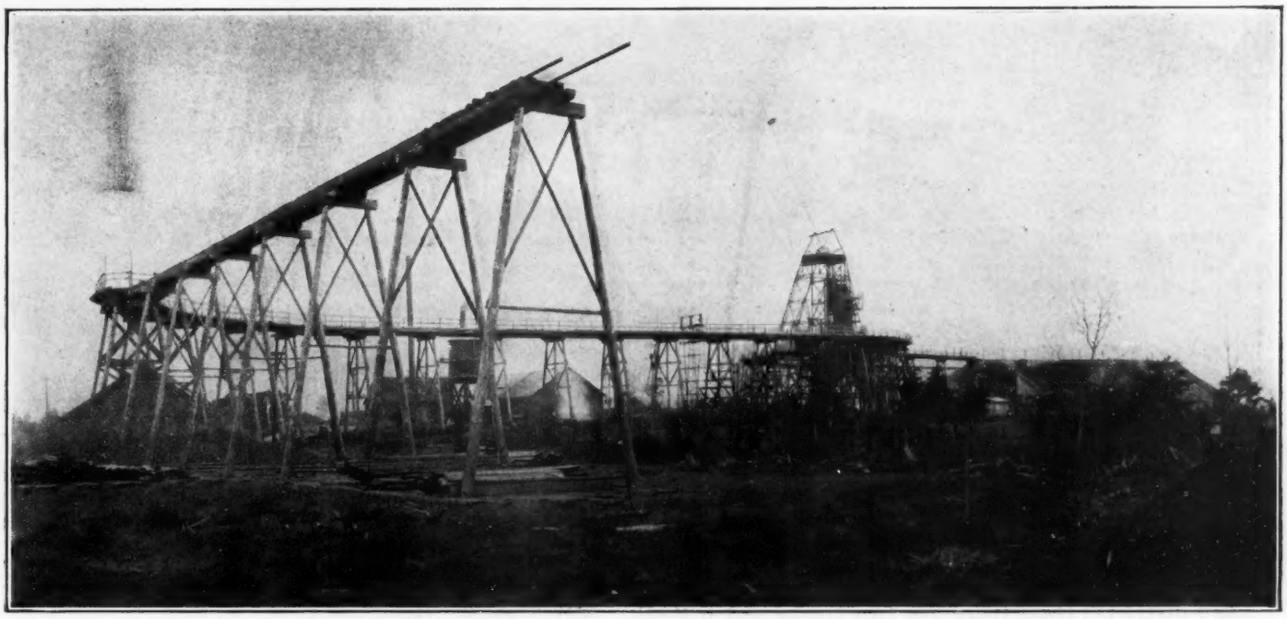
3. A 5-TON STORAGE-BATTERY LOCOMOTIVE AT WORK

This is a Westinghouse machine in the Red Ash bed at the No. 3 shaft of the Kingston Coal Co., Kingston, Pa.

Methods in the Northwest That Impressed The Coal Men of the A.I.M.E.

Product Is Stored Automatically on Light Trestles or Peg-Leg Mine Tracks—Methods of Shooting and Using Ventilating Conduits Have Been Carefully Standardized—Stripping Equipment Is of the Heaviest

By R. Dawson Hall



STOCKING TRESTLE AT FRANCIS MINE

The headframe of this mine is of the open type. The light bents and superstructure of the stocking trestle can be removed and replaced at insignificant cost.

In the previous article entitled "Engineers Visit Copper and Iron Ranges," I described the summer meeting of the American Institute of Mining and Metallurgical Engineers as far as the arrival of a section of the party at Ishpeming and its visit to Negaunee with its interesting bath houses.

Negaunee Trestle Gives Convenient Storage

The most striking feature in the visit to the Negaunee mine was the permanent "trestle" that has been erected at that place for the storing of ore. Of course, it would be impossible to pile bituminous coal at the depth at which iron ore is customarily stored, but the methods which are adopted at the mines in the iron region are quite suggestive of possibilities in the coal fields of the United States.

It will be noted that this trestle appears in the illustration accompanying this article to be made wholly of steel, but that is not the case because on the inside of the large posts has been placed a filling of reinforced concrete, which is the permanent support for the tracks above. It is unnecessary to call attention to the fact that this trestle gives every facility for steam-shovel work. The piers have 114 ft. centers, the height to the top of the rail is 42 ft., and in consequence of these generous dimensions it is possible to obtain the greatest degree of freedom when shoveling up the ore for the filling of railroad cars.

The columns are 6 ft. in diameter at the base and 4 ft. at the top. They are attached to pyramid-shaped rectangular reinforced concrete bases 12 x 26 ft. in plan and 6 ft. deep. The reinforcement consists of ⅞-in rods which extend up into the columns a distance of 20 ft. The length of the trestle is just short of one-half mile, namely 2,320 ft., with 2,090 ft. available for stocking ore. It was built in 1912 by the Wisconsin Bridge & Iron Co. and was guaranteed to support a moving load of ten tons.

Men Do Not Go with Cars Onto Trestle

The cars which run on the trestle contain barely five tons of ore, hence there is no undue stress. The top tram cars run by an endless-rope system, the cars being furnished by 50-hp. motors. The rope operates through rubber-lined grooved sheaves, 8 ft. in diameter. An automatic dumping device placed on the track empties the cars as they reach the desired location, and consequently no one has to accompany them in their travel to and from point of discharge.

In this article are shown some of the other installations for stocking purposes. One is a single-track trestle at the Francis mine. It will be noted how light and airy this trestle appears and how readily it can be constructed whenever its extension is desired. Such trestles are usually taken down every year and replaced with equal frequency. Another trestle illustrated here

IRON ORE CONCENTRATOR AT COLERAINE, MINN.—EXAMPLE OF BENEFICIATION OF A LOW-GRADE PROD

In 1905 the Oliver Iron Mining Co. erected the present Trout Lake concentrator. The plant was ready for use in 1910. It is located on the east side of Trout Lake, readily accessible from all directions. The mill building is of heavy steel construction throughout, 255 ft. long, 162 ft. wide, and 124 ft. high, enclosed with corrugated iron. The approach to the mill is an earth fill, some 4,000 ft. long, containing several million cubic yards of stripping from the Canisteo and Walker pits. It has a maximum height of 125 ft. and was planned to accommodate four tracks. A steel trestle 650 ft. long connects it with the mill. At

is the stockpile trestle at the Morris mine in the North Lake district. Here there are two tracks and a three-post wooden trestle; the construction, however, is as light as at the Francis mine and gives the shovel an equal chance to work around the vents.

At the Republic mine is a stockpile trestle which has a close likeness to that in use at Negaunee, there being but one post under the track, which in this case is of wood and not of reinforced concrete. There is but one track, however, in the Republic mine trestle. As it would be somewhat unstable without proper reinforcement, it will be noted that wire ropes have been used to prevent any lateral motion.

Can Like Methods Be Used at Coal Mines?

These designs, it would seem, might furnish to those who are stocking coal some suggestions as to the methods to be employed. It is clear that if an automatic dumping device is provided it is possible to omit any scrupulous adherence to the rules of safety, because where men do not have to go there is no danger to human life, and all we are jeopardizing is the structure and equipment and some possible delay at the mine. Where there is more than one trestle, the matter of delay may be overlooked.

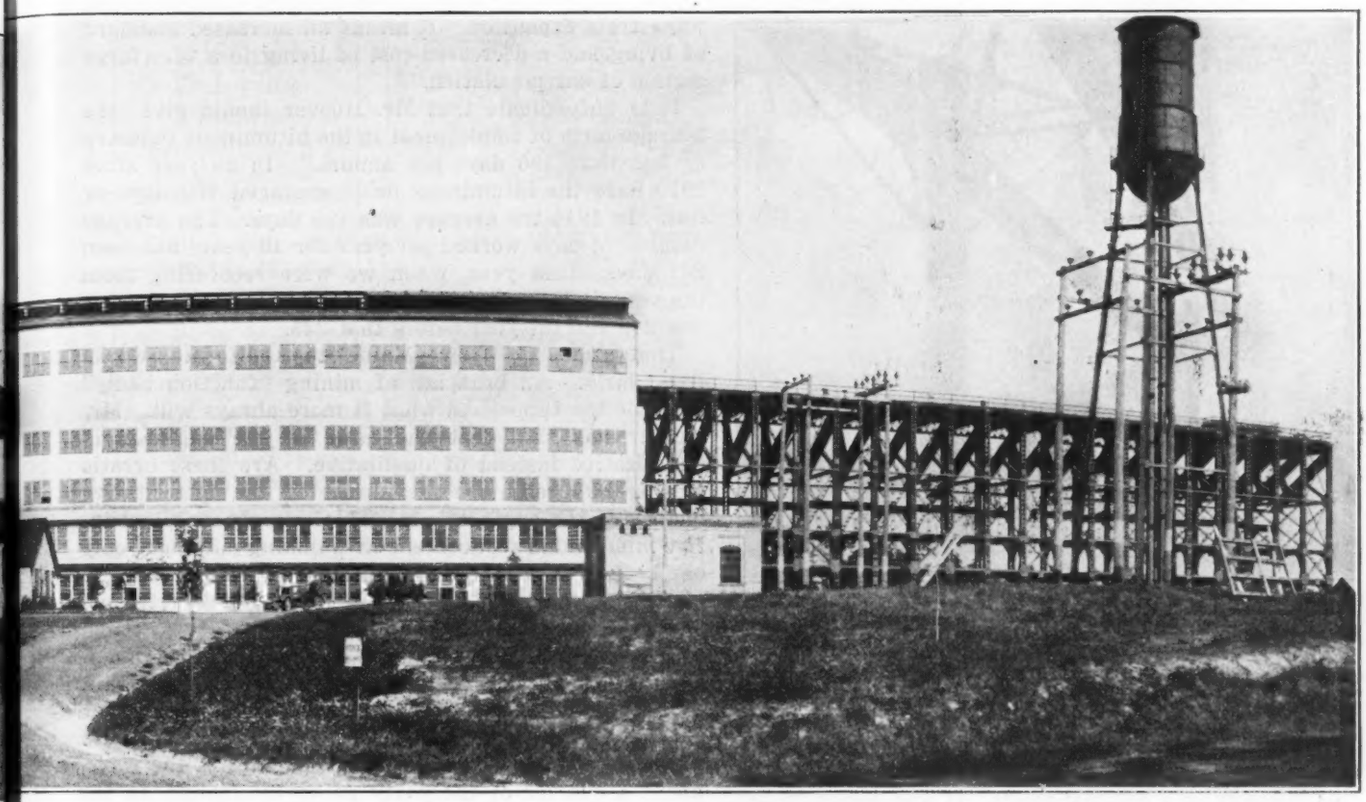
A further advantage is that there is not much lumber in the trestles and should they catch fire the loss would be less severely felt. In the dumping of coal direct from the mine, however, there would be the difficulty that large and small coals would be mixed and a greater probability of fire would ensue. This difficulty is unfortunate because the better way to handle the coal would be to stock it unsized and then size it afterward, because in standing out in the rain, snow, frost and air it would be sure to break up and need resizing. Furthermore, there would be considerable breakage in putting the coal into storage, especially in trestles such as those at the Marquette region. Consequently resizing would become necessary even if the coal were left only a few days in storage. However, the trouble might be met by rough resizing at the tipple and a more careful preparation later.

It will be noted in looking over some of the pictures of these stocking trestles that some of the headframes are quite lightly constructed and are not housed as are other trestles to which reference has been made in earlier numbers of this article, but whether to house or not house the headframe apparently is a question which has not so far reached settlement in the Marquette region.

Early in the afternoon the Marquette party took a train for Iron Mountain and met the Norway, Vulcan and Iron Mountain party at the latter town. A meeting was held in a local motion picture house where the Midvale Steel Co. showed some reels illustrating their operations in the Menominee iron field, at the big Johnstown iron works and elsewhere. Cornelius Kelly introduced Mr. Hoover, who spoke most interestingly on the good administrational work done by mining engineers during the war and afterward in Belgium, France, the United States and lastly through central Europe.

Paper on Details in Shooting Entries

During the night the special trains that had transported the parties from Houghton to Iron Mountain by way of Marquette and Ishpeming and through Vulcan and Norway respectively formed one large train which



UCT—IRON ORE—WHICH, LIKE COAL, DOES NOT PERMIT OF MORE EXPENSIVE METHODS OF TREATMENT

the opposite end of the concentrator 300 ft. of additional steel work is in place and is now being used for tail track; it can be utilized for an addition to the mill if need arises. The total amount of steel in the plant is about 7,000 tons. The total cost of mill and equipment approximates $1,500,000. The structure emphasizes the value of gravity in the construction of a washery for the cleaning of low-grade materials. Most of our modern breakers are trying to eliminate unnecessary conveying equipment. It also shows what can be done by the efficient placing of strip-pit material wherever it has to be handled by railroad cars.

took all the members and visitors to Minneapolis. Arriving at that city, automobiles conveyed the members of the institute to the Hotel Curtis and registration and thence to the University of Minnesota, where a session on Mine Practice was held with Herbert Hoover presiding, one on Geology and Resources with W. R. Emmons in the chair and one on Oil and Gas Wells and Non-Ferrous Metallography with C. E. Julihn as chairman.

The article by J. E. Hackford on the "Nature of Coal" reproduced in this issue in another place was presented at the last-mentioned meeting. An article on "Standardizing at North Butte Mining Co.'s Mines," showing how in those workings the placing of shots for drilling has been made the subject of a most careful analytical study and how as a result there is no happy-go-lucky placing of shots but a close following of the best possible methods planned with due regard to diameter at different depths, position, angle and depth of holes, size of charge, and position of primer.

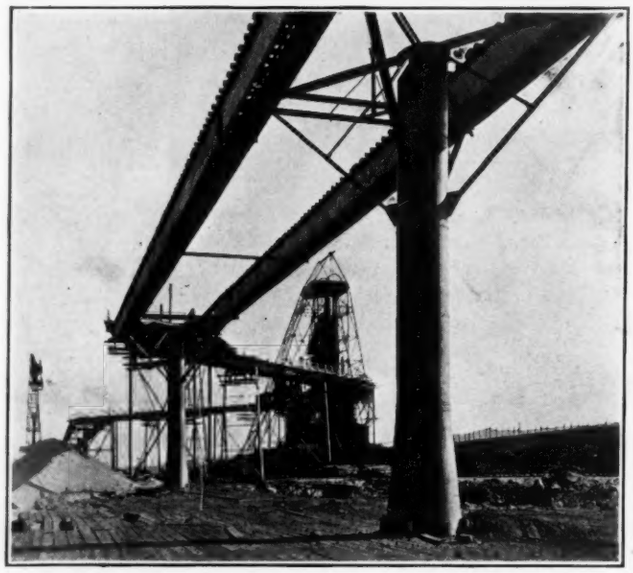
Tables on Use of Cloth Air Conduits

This article by Robert Linton of New York City is commended to all who have rock work to do. It standardizes the ventilation of headings by means of canvas tubing similar to the "Flexoid" conduits manufactured by the Bemis Bag Co. of St. Louis, prescribing the cross sections of the tubing for given lengths, the sizes of the motors and their speed, all the data being based on the clearing from smoke of a heading 6 x 8 ft. in 35 min. The article gives standards for chutes and prescribes completely also the details of stoping. The anthracite-mining engineer will find this careful treatment of the art of mining eminently practical and full of suggestions for the conduct of his identical or, at least, similar work. Another paper presented was "Modern Commercial Explosives and Their Uses" by A. J. Strane of Tamaqua, Pa. Looking at many of the papers on mining practice, one cannot see how coal-mining engineers can afford to pass up the achievements of their sister branches of their profession as without bearing on their own daily duties.

A luncheon was served at the St. Paul Hotel at St. Paul, at which Mr. Hoover spoke. The lunch was followed by a delightful drive through the wonderful park system of Minneapolis—truly one of the fairest of cities. Some visited flour mills, others played golf and some inspected the Minneapolis Steel & Machinery Co. plant.

In the evening a reception was held in honor of Mr. Hoover, and a banquet followed presided over by the past president, Philip N. Moore, at which W. C. Edgar, the editor of the *Northwestern Miller*, was toastmaster, and Herbert Hoover, the institute's president; J. E. Spurr, editor of the *Engineering and Mining Journal*, and F. B. Snyder, president of the Board of Regents of the univerity, were speakers. Professor Spurr's speech was a masterpiece of humor and reminiscence.

Herbert Hoover spoke on the necessity for a Department of Public Works and incidentally made some remarks on the coal situation which we append. It is perhaps unfair to single out that part of his speech which most fittingly deserves disapproval. Most of his friends will wish it had been omitted and will regret that he is so prone to seek remedies which would only land us in difficulties more profound and yet quite similar to those from which we are suffering as the result of our war and pre-war socialism. He said "We have a long list of such [politico-engineering] problems. Some



PERMANENT TRESTLE AT NEGAUNEE NO. 3 SHAFT
Piers have 114 ft. centres. The height to the top of the rail is 42 ft.

of these have been discussed before the Institute on previous occasions. I may refer to our discussion of Eastern bituminous coal. During the past year the Institute undertook to look into the economic situation of this industry as a national whole. It was demonstrated to be the worst functioning industry in the country. Owing to seasonal and other irregularities of demand, the average term of employment in the bituminous industry is less than 190 days per annum. If this industry could be operated a normal work year 125,000 men could be turned to other production. It is an industry in which 30 per cent more capital is invested than would otherwise be necessary. The cost of coal to the consumer and the risks to the operator are greatly increased, and, above all, it presents a great human problem fraught with all the terrible misery and strikes and justified discontent that flow from intermittent employment.

"I am not proposing nationalization of the coal mines; far from it. What is required is that we should realize that with our necessary social view of prohibition of combination there remains a national problem beyond the solution of any individual coal operator or any group of operators. It must have national guidance and national plan for its solution, a co-operation of great consumers, railways, operators and miners—but what individual operator can do this?

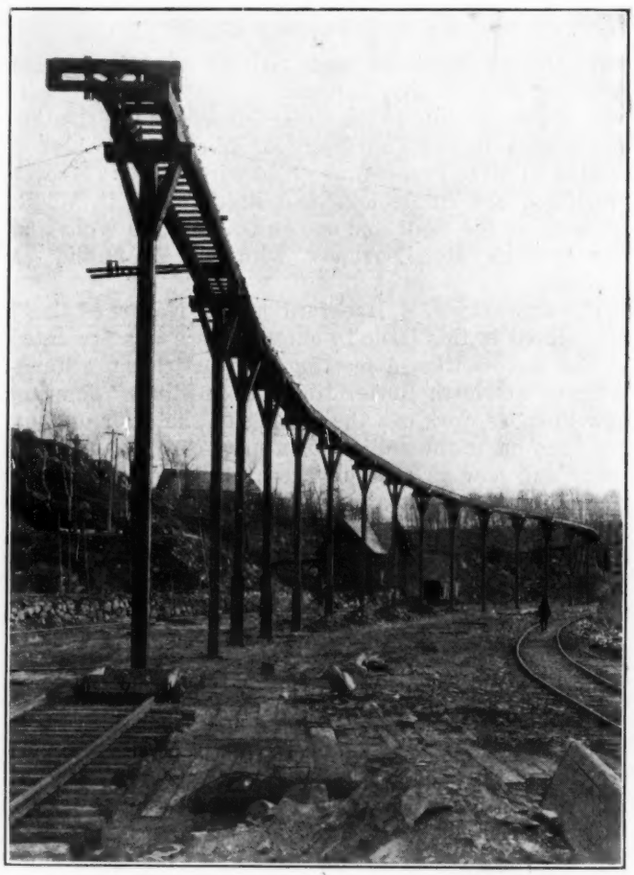
Why Start Investigations and Forget Facts?

"In respect to our coal supplies again, if we would look forward to the next generation, we have a problem of conservation of immense importance. In this connection, it has been ably proposed by our members that the national government should co-operate in investigating the possibilities of the establishment of a great electrical trunk line throughout the great power consuming districts of the Northeast, and that we should feed into this great power road power generated at the mines and available water sources, drawing from it at every town and city. The consummation of this project means cheaper power to all consumers. It means a great economy in consumption of coal. It means more regularity in output. It thus means greater ability to compete in world manufacture. It means great relief to the railways from expansion. It means an increased standard of living and a decreased cost of living to a very large section of our population."

It is unfortunate that Mr. Hoover should give "the average term of employment in the bituminous industry as less than 190 days per annum." In no year since 1910 have the bituminous fields averaged 190 days or less. In 1914 the average was 195 days. The average number of days worked per year for 10 years has been 231 days. Last year, when we were recovering from the war, it was probably 201 days; the year before it was 249 and the year before that 243.

That industry from Maine to California works irregularly. All branches of mining "function badly" much of the time—and what is more always will. Mr. Hoover has said that the mind of the engineer is quantitative instead of qualitative. Are these erratic figures he presents an evidence of the quantitative quality of the engineer's mind? Certainly no quantitative mind would rest content with finding out about only one branch of mining or manufacturing when trying to establish a superlative so sweeping as the "worst functioning industry in the country."

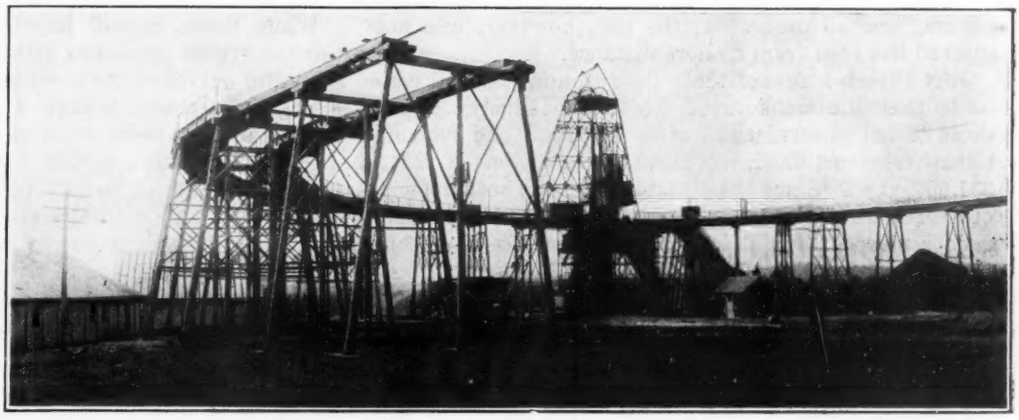
After the banquet the guests made a hurried decampment, many of them in their evening dress. The train left at 11:30 p.m. for Duluth, Minn., and thence for Eveleth in the same state where some 200 automobiles met the party. Here again was a parting of the ways, about a quarter of the party going to Babbitt, in the extreme east-northeast of the Mesabi range. The first establishment visited by the larger party was the concentrating plant of the Oliver Iron Mining Co. at the



STOCK-PILE TRESTLE AT REPUBLIC MINE
This is a one-leg trestle, giving a maximum opportunity for the approach of the shovel. Note the almost horizontal cables which steady the track and keep it from toppling over. The trestle is at the Pascoe shaft.

Mine and Dumping Trestle

At this mine of the Cleveland - Cliffs Iron Co., Morris Mine, North Lake District, note the character of the bents which are usually taken down as soon as the ore is removed.



Leonidas mine, named after Leonidas Merritt, who gave first commercial start to the Mesabi range.

The ore at the Leonidas mine is, for the Mesabi region, relatively deep, and it is the expectation that at some time the shaft will be sunk lower to another deposit as the ore is split at this point. About half the ore of the Mesabi region comes from shafts, and it is interesting to notice that here as in the Marquette and Copper ranges the rope instead of coming off the head sheaves and going direct to the drum at a vertical angle of roughly 45 deg. goes at a much less steep angle back to a relatively remote shaft house, being upheld by a lofty series of idler sheaves which shift laterally on their shafts as the ropes wind off or wind on different parts of the drum.

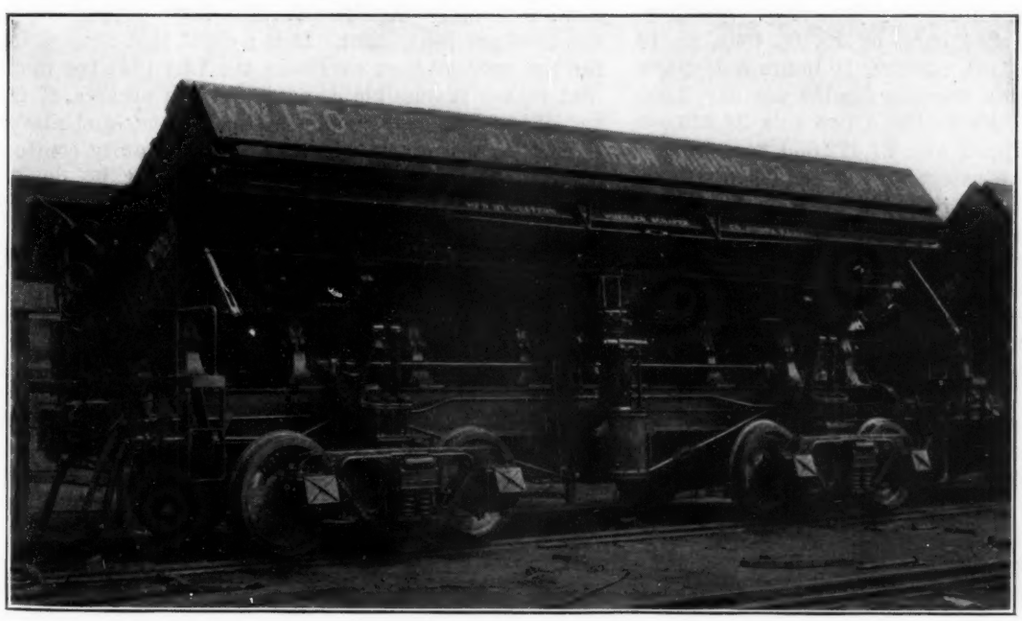
The use of idlers is to save the rope from binding on the rim of the headsheave as is necessary with a deep shaft and the wide drum that goes with it. Some shafts which use idlers are, however, by no means deep, yet even with these the idlers are used. This precaution seems to have been taken even where there has been no greater need of it than is found at the average American coal mine. The use of the idlers in these instances arises probably from the persistence of a type long after the need for its preservation ceased to be present. The coal-mine engineers possibly tend to a persistence of the opposite character.

It must be remembered that where the ore body lies steeply as in the Copper Range and in the Marquette Iron region it is well to put the hoist house at some distance because thereby it is rendered less subject to the disturbance of the strata caused by mining. Where the shaft is in the solid footwall, however, there can be no disturbance and the need for idlers and a remote hoist house does not exist.

At the Leonidas concentrator the large ore is crushed and washed free of loose surface sand so as to improve its quality. As someone said, it was "laundered" rather than "washed" in the sense in which the word is now generally used in regard to coal and metallurgical work.

The party then traveled northward to the Virginia and Rainy Lake Co.'s large sawmill, which manufactures daily a million feet board measure of white pine, the largest white pine mill in the world. The plant covers 300 acres, employs 1,400 persons including many women and has 20 years of timber supply. Cafeteria lunch was served in the I. O. O. F. hall at Virginia of which place and of other fine villages in the Mesabi region something will be said later.

In the afternoon the automobiles hit the trail again via Mountain Iron, Wade Mine, Kinney, Woodbridge and other Buhl mines, the Shenango pit at Chisholm and the Buffalo pit at Hibbing. At one of the mines a large blast of 100 holes was made for the delectation of the visitors, filling the air with a dense cloud of impalpable ore dust. Arriving at Hibbing and the headquarters of the Oliver Iron Mining Co. the visitors took seats in sightseeing flat cars provided by the United States Steel Corporation and went down into the celebrated trio of mines, the Hull-Rust, Mahoning and



Spoil Stripping Car

Twenty-cubic yard cars made entirely of steel with a dump operated by compressed air are used for the transference of spoil, the material discharged being thrown over the edge of the berm by a spreader. Some of the large methods of the iron country should long ago have been adopted at the big strippings of the anthracite region.

Sellers, now all connected; the last, however, was not entered but seen from a short distance.

Just absorb a few of these figures, and you will conclude that the wonders of American industry dwarf those of our governmental achievements. The Panama Canal construction involved an excavatiton of 231,351,000 cu.yd. Since the Mesabi range has been opened, of worthless stripping alone 354,301,371 cu.yd. have been removed. The Oliver Iron Mining Co. alone has put into stock piles no less than 9,000,000 cu.yd. of lean ore. Yet stripping engineers of the anthracite region have apparently quietly ignored these wonderful achievements, to judge from the difference in practice prevailing. The stripping in the Buffalo and Susquehanna pit reached in one place a depth of 156 ft. and the average over a considerable area was 135 ft. The Mesabi range produced up to the first of the year 520,686,631 long tons, the greater part of which had to be transported to Cleveland, Buffalo and Pittsburgh.

Narrowing our vision to the Mahoning and Hull-Rust pits and overlooking the Sellers pit that a mere line separates from the others, the length is 1¾ miles, the width ¾ mile and the maximum depth 250 ft. The area at present stripped is 500 acres. The maximum grade for loads is 1½ per cent and for empties 6 per cent. The stripping grade is 2½ to 3 per cent. The mine grades are 1.85 per cent for both empty and load tracks. The locomotives run from 17 x 24 to 23 x 28 in., and the weights on the drivers from 86,000 to 120,000 pounds.

Have No Use for Dinkeys in Hibbing Pits

The larger locomotives can haul four 30-yd. dirt cars. In the pit about 750 men are employed. Shovels of many types are used, the smallest weighing 76 tons, having 3½-yd. dipper, and devouring 5 tons per bite. Intermediate-size shovels weigh 91, 95, and 100 tons, having dippers of 4½- to 5-yd. capacity, and raise 8 to 10 tons per bite. The largest shovel, which originally was at work stripping off the surface, is now shoveling ore. It digs 40 ft. below the level of the track on which it loads. On the rear it carries a chute and a pipe line, by which it is supplied with coal and water from the top of the 40-ft. bank.

The banks or levels are drilled by 4½- to 6-in. churn drills operated by gasoline engines. The stripping cars carry from 20 to 30 cu.yd., are all steel and are dumped by compressed air. The dumps are leveled by spreaders. The big shovels load 214 cars, or 10,400 tons, in 10 hours. The Mahoning pit, running 10 hours a day, and the Hull-Rust, 20 hours, together loaded per day 2,095 cars, or 95,658 tons. From these two pits 38,236,000 cu.yd. have been stripped and 81,472,000 tons of ore sent to market, the ore reserve being 181,000,000 tons.

Part of Hibbing is being pulled down to permit of the extension of the pits. There are 16 shovels in operation and 34 locomotives, and the track in the pit measures 37 miles. In 1916 a total of 10,000,000 tons of ore was shipped in 200 days—approximately one-seventh of all the iron ore mined in the United States for that year. The tracks are kept in wonderful condition, compressed-air tampers of the Ingersoll-Rand Co. being used to pack the ballast under the ties.

There is so much for a stripper to learn in the Mesabi region that it would be worth the while of any strip-pit engineer in the anthracite region to go to that range and learn its methods. Its shovels, its cars, its engines, its tracks, its drilling machines, above all its enterprising spirit, are worthy of imitation.

While there, it will pay the engineer to visit the Cuyuna region some few miles to the south where the sand and gravel of the overburden is being removed by hydraulic methods, though a steam shovel is required for the final clean-up work on the top of the ore body. The stripping here ranges from 25 to 80 ft. in depth. One of the mines using the method is the Hillcrest operation a little to the west of Ironton and Crosby.

In the evening the guests had a buffet lunch in Bennett Park, which is one of Hibbing's many glories. This was followed by a technical session on the Metallurgy of Iron and Steel at the High School and an athletic entertainment at the Armory.

I have already weakened my reputation for sane judgment by a large use of superlatives. I have others, however, to add. Nowhere are there such industrial villages as Eveleth, Virginia, Buhl, Chisholm, Coleraine and Hibbing. The citizens therein domiciled regard that fact as a cause for boasting, but the opulence and magnificence of the villages arises purely from "profiteering" practices. The public of the United States, and, it might be said, of the whole world is paying for the schoolhouses, the recreation halls, the power plants, the electric lights, the libraries, the parks and the streets of these cities.

Towns with Opulent Municipal Treasuries

The taxation by which this money is raised is a property tax based on the iron ore in the ground and not on the ore shipped. The holder of the ore pays 50 per cent on its full value, while other property is taxed at only 33⅓ per cent and 25 per cent.

As a result in 1919 the mining interests on the Mesabi and Vermilion ranges paid in taxes $18,000,000 or $0.554 per ton of ore shipped. Thus villages of from 10,000 to 20,000 inhabitants have one or two million-dollar schools. One school has been built three years without opening its doors to a pupil. Hibbing has a million and a half-dollar power plant. It has a library containing 300,000 volumes. The building is lined with marble and decorated with mural paintings. The village is building a $300,000 conservatory.

It has two fine parks and a zoological garden. Many if not all the blocks have sixteen lamp stands, each with five lights. It is a byword around Hibbing that the chickens cannot sleep in that village because the night is too brilliantly illuminated. The taxes expended average $350 per inhabitant. It is a sight that demoralizes, for the average man overlooks the fact that the money that makes it possible comes from the pockets of perhaps 200,000,000 of people in this country and abroad. It is natural to question why such community comforts cannot be made universal, but it cannot be done if others outside the community cannot be compelled to pay for them.

The mines are not as trimly kept as those in the Marquette region. The expenditures are mostly in municipal architecture and in the welfare provided by taxation.

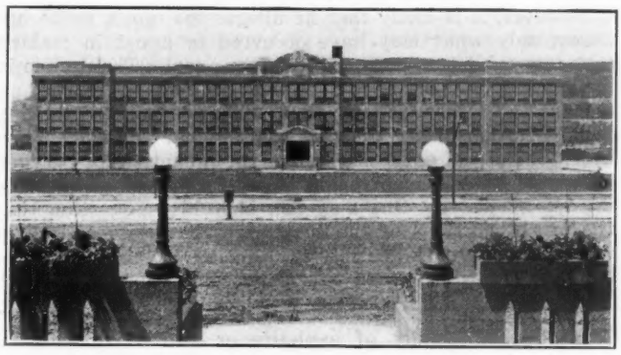
The institute spent the night on the special train, arriving the next morning at Coleraine and being met by the same sight-seeing flat cars which took them over the Mahoning Hull-Rust pit. This train, provided by the courtesy of the Oliver Iron Mining Co., took the party into a large strip pit near Coleraine, in an idle part of which it was interesting to note the growth of vegetation, possibly oats, which would tend to show that a stripping is not necessarily incapable of sustaining

Houses at Morgan Park

This is First Street of Morgan Park, a suburb of Duluth, built by the United States Steel Corporation. All the houses are built of concrete block.

vegetation. However, these pits will ultimately be lakes.

The cars took the visitors up to the great Trout Lake concentrator, near Coleraine. As it has little of interest to coal men, nothing need be said of it. The party then took its own train back to Duluth, where it was taken in charge by the Duluth Engineers Club, several trips being offered.



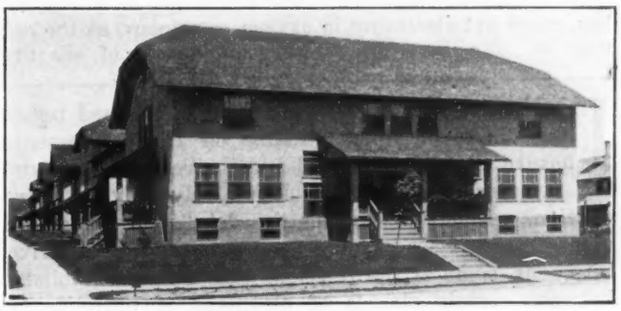
MORGAN SCHOOL NO WHIT BEHIND HIBBING'S

The school faces the community building, from the porch of which the photograph from which this illustration was made appears to have been taken.

My preference was for Morgan Park, a delightful suburb of West Duluth owned by the United States Steel Corporation. All the buildings are of concrete block. The dwellings are certainly as fine as any built for the housing of workmen in any section of the country, much better than the superintendents of some of our large coal companies are favored with. Some quite representative dwellings are shown in this article. The men who live here work at the steel plant and the cement works.

Leaving Morgan Park we traveled to the shipbuilding plant, where a Shuveloder was on operating exhibition. One of these shovels is now being made every day. Shuveloders are small, relatively inexpensive machines, and so can be bought in sufficient numbers to fill the many isolated loading jobs which mining operations entail. A trip along the beautiful boluevard that traverses the hill back of Duluth, a ride in the steamboat through the inner harbor with buffet lunch and a dance on the boat and a chance to view the wonderful docks, some very busy unloading the coal that they are at last receiving, ended up a perfect trip, some 78 of the party leaving by special train for Chicago and others waiting for Monday's boat.

Among the notables present at the meeting were Eli T. Connor, consulting engineer, Hudson Coal Co., with his wife, son and daughter; R. V. Norris, consulting engineer, with his wife; H. H. Stoek, dean of mining, University of Illinois, with his daughter; J. W. Knowlton, mining engineer of the West Virginia Coal and Coke Co.; C. E. Young, professor of mining, Kansas University; James S. Cunningham, of the Berwind-White Coal Co., and wife, and George S. Rice, chief mining engineer, Bureau of Mines. The last not being in the best of health could only be with the party while at Minneapolis.



MORE OF THE HOUSES ADORNING MORGAN PARK

So many pretty vistas can be found at Morgan Park that selection is difficult. The occupants of these fine dwellings are mostly newly transplanted Europeans who work at the steel mill and the cement plant. They certainly seem to justify the large expenditures that have been made. Morgan Park is not merely beautiful; it is orderly also.

Commissary

A company store where anything goes so long as it is the best.

In Presence of Oxygen and Sulphur, Peaty Oils Harden to Bright Coal Substance*

Chemical Research Would Appear to Indicate That Coal is the Residuum of a Deposit of Terrestrial Vegetation While Petroleum Originated Either from Animal Remains or Decayed Marine Plants

By J. E. Hackford
London, England.

[Perhaps Mr. Hackford will pardon my temerity in briefing his argument in my own way before submitting his article. He believes that peat at some time contained intrinsic oils similar to petroleum which were retained by the cellulosic structure of vegetal matter, which oils in the presence of free oxygen and possibly free sulphur with low heat become successively diasphaltenes, asphaltenes and kerotenes and so became fixed in the cellulose. Present-day petroleums are oils which being made from animal matters or marine vegetation were not retained by the substance from which they were derived and, being unassociated with free oxygen or free sulphur, did not change progressively to kerotenes but remained as oils.

Some segregated oils did not thus escape mixture with oxygen and sulphur and they became in time natural kerotenes (oxykerites or albertite and thiokerites or wurtzilite), low in ash but abounding in oxygen or sulphur, as the case may be. Mr. Hackford in his paper treats of oils first because he views them as similar to the original oils in coal. He shows how they change character with addition of oxygen, sulphur and a "boiling" or somewhat lower heat, and argues plausibly that what can be done to turn them into kerotenes has been done to coal to convert it to a substance containing kerotenes.

However, it is likely that he alleges too much, as he has shown only what may have occurred to assist in making peat into sub-bituminous or bituminous coal. The decline in oxygen content as a high grade of coal is reached is evidence of other actions than oxidation and a "boiling heat" at atmospheric pressure will supply. Possibly, however, oxidation goes on, while the quantity of oxygen decreases, that element being steadily removed as carbonic dioxide or water. One may ask is it his suggestion that the bright portions of the coal might be kerite and so of vegetal-oil origin? Possibly kerite may be present in the black shales which often cover the coal.—Editor.]

IN RESEARCH work that I have performed results have been obtained bearing on the fundamental nature and origin of coal and the relationship existing between coal and petroleum. By way of introduction, without discussing the details of the experiments, which were conducted on petroleum and derived bitumens, some of the relations that I have established between certain classes of bitumens of petrolifierous origin are given in the form of definitions.

Bitumen.—A natural organic substance, gaseous, liquid, or solid, consisting of hydrocarbons and their oxy- or thionic derivatives or of a mixture of all three.

Diasphaltenes.—Those portions of bitumens that are soluble in ether or carbon disulphide but are insoluble in a mixture of equal parts of ether and alcohol. Diasphaltenes are produced by the oxidation or thionization of petroleum oils; they have, as the name indicates, twice the molecular weight of asphaltenes, into which they are converted when subjected to moderate temperature. For example, an artificially produced diasphaltene which was readily soluble in pentane and ether was quite insoluble in either of these solvents after heating for three weeks at a temperature of 212 deg. F. It has been converted into an insoluble asphaltene.

Asphaltenes.—Those portions of bitumen that are insoluble in ether or ether alcohol but are soluble in carbon disulphide.

Asphaltites.—Those solid or semisolid natural bitumens that are composed for the most part of asphaltenes or diasphaltenes. A pure asphaltite[1] would be composed wholly of asphaltenes and diasphaltenes, but most asphaltites contain small percentages of oil and wax which have not yet been converted into asphaltenes; they may also contain a small percentage of kerotenes, which represent the next stage of the metamorphosis of asphaltenes. Among the naturally occurring oxyasphaltites may be mentioned grahamite; and among the thioasphaltites, gilsonite.

Kerotenes.—Those portions of bitumen that are insoluble in carbon disulphide. They are produced, by gentle heat, from asphaltenes. It can be demonstrated experimentally that artificially produced thioasphaltenes and oxyasphaltenes, when kept at a temperature of 212 deg. F. for three months, are converted, with but slight gaseous losses and without change in sulphur content, into kerotenes,[2] Most of the kerotenes produced by gentle heating from asphaltenes in this manner were entirely insoluble in any known solvent, including pyridine, chloroform and quinoline.

Kerols.—Those portions of kerotenes that are soluble in chloroform as well as in pyridine.

Keroles.—Those portions of kerotenes that are soluble in pyridine but insoluble in chloroform.

Kerites.—Natural solid bitumens composed for the most part of kerotenes. A pure kerite would be composed wholly of kerotenes, but the natural kerites generally contain small percentages of one or more of the following: asphaltenes, diasphaltenes, wax and oil whose conversion to kerotenes has not been completed. Of the natural examples, wurtzilite may be mentioned as a thiokerite and albertite as an oxykerite.

It has been demonstrated in the course of these

*Reprint of paper entitled "Nature of Coal" to be presented before the Oil Section of the American Institute of Mining and Metallurgical Engineers, St. Louis, September, 1920. Copyright, 1920, by the American Institute of Mining and Metallurgical Engineers, Inc.

[1]The term asphaltite, as recommended by Eldridge (*Twenty-second Annual Report*, U. S. Geol. Survey, 1901) is preferable to Dana's term "asphaltum" ("Descriptive Mineralogy," 6th edition, 1906, 1017), for the reason that the naturally occurring representatives have the generic ending "-ite," *e.g.*, gilsonite, grahamite, etc.

[2]This term is derived arbitrarily from the word "kerogen," the term introduced by Crum Brown ("Oil Shales of the Lothians," Geol. Sur. of Scotland, 1912, 43) to denote the organic matter present in oil shales, in ordinary solvents, and from which hydrocarbons are obtained by dry distillation. It was at first proposed to use the term kerogen, which would be entirely appropriate in this general sense, but it was felt that some confusion might arise because the word kerogen has become associated with the bitumen of the oil shales only.

experiments that either sulphur or oxygen can play a predominating rôle in the formation of these classes of bitumens. If a straight Pennsylvania lubricating oil with a negligible sulphur content is digested at a temperature of 212 deg. F. with either sulphur or oxygen, a darkening in color first takes place (owing to the formation of thio- and oxydiasphaltenes); this discoloration gradually increases to black with the formation and precipitation of asphaltenes, which constantly increase until the whole, except for gaseous losses, is converted into kerotenes. Similar results have been obtained from sulphur-free paraffin wax[3] and from natural petroleum oils of all characters; that is, by oxidation or thionization, accompanied by gentle heat, any natural petroleum oil may be converted first into oxy- or thioasphaltenes, then into kerotenes. Certain kerotenes are wholly insoluble in any of the known solvents, including chloroform, pyridine and quinoline. As these experiments progressed it became evident that bodies closely analogous to coal were being produced from petroleum in the laboratory by oxidation, thionization and gentle heat; this gave rise to certain inferences which it is the purpose of this paper to set forth.

Summary of Previous Coal Researches

The elucidation of the nature of a body like coal, that is only sparingly soluble in solvents and cannot be made to yield crystalline derivatives without previous violent manipulation, has naturally presented no little difficulty. During the last five years a large amount of work has been accomplished respecting the nature of coal by numerous investigators.[4]

These investigations have been mainly along two lines: one was the examination of solvent extracts, and the other was the study of the products of low-temperature distillation. The results are scattered and the interrelationships have not been fully pointed out. Briefly stated, these investigators have shown:

(1) That by low-temperature distillation and by the examination of solvent extracts, paraffin, olefines and naphthenes have been isolated and identified.

(2) That the tar distilled from coal at high temperatures is a decomposition product of coal tars previously formed at low temperatures.

(3) That the cellulosic compounds present in coal result in the formation of phenols upon dry distillation.

(4) That the temperature at which coal was formed cannot have approached 572 deg. F.

In 1913 Messrs. Clark and Wheeler[5] described experiments in which a soft bituminous coal upon extraction with pyridine yielded a substance representing by weight a percentage of the original sample, which upon subsequent low-temperature distillation yielded a mixture of paraffin-hydrocarbons and hydrogen. In view of my own research I suspected that the portions of coal extracted in this manner by pyridine consisted largely of asphaltites and the soluble kerites; accordingly the following experiment was carried out:

A sample of 250 gr. of Yorkshire coal was extracted with pyridine. The bulk of the pyridine was then distilled off under reduced pressure and a large excess of ether added. A voluminous black precipitate was thrown down, which was pumped, washed with ether, and weighed. By weight it represented 5.1 per cent yield. This black powder was found to be 15 per cent asphaltenes and 84.9 per cent kerotenes. The 84.9 per cent of kerotenes was found to be a combination of 17.9 per cent of kerols and 67 per cent of keroles. This black precipitate was thus split up in a manner and into fractions similar to those obtained when working upon natural kerites, as, for example, albertite and wurtzilite, which gave the results shown in Table I.

TABLE I. DERIVATIVES OF OXYKERITE AND THIOKERITE.

	Oxykerite (Albertite), Per Cent	Thiokerite (Wurtzilite), Per Cent
Asphaltenes	9.0	12.8
Kerotenes	89.03	81.37
Sulphur	Trace	5.83
Oxygen	6.97	0.00

The similarity, however, does not end here, for many of the fractions upon heating melted with decomposition, evolving oil containing (in the case of albertite) quantities of paraffin wax; while the asphaltenes and kerols evolved sulphuretted hydrogen. The most sparingly soluble fraction, keroles, does not intumesce to any extent upon heating, as do the asphaltenes. The solubilities of these substances are exactly the same as those of similar fractions derived from natural kerites,

TABLE II. ANALYSIS OF UNFRACTIONATED PRECIPITATE

	Asphaltenes and Kerotenes from Coal, Per Cent	Natural Kerite, *e.g.*, Albertite from New Brunswick, Per Cent	Kerite in a Transformer Sludge a Naturally Produced by Oxidation of Transformer Oil, Per Cent	Synthetic Oxykerite Prepared by Passing Oxygen Through Lubricating Oil, Per Cent
Asphaltenes and Kerotenes	100	98.03	100	100
Carbon	73.64	.....	76.0	74.0
Hydrogen	4.87	.....	7.1	6.2
Sulphur	1.07	trace	?	1.58
Nitrogen	2.83	1.4	?	.....
Oxygen	16.67	6.97	16.96	18.22

(*a*) Dr. A. C. Michie [*Journal* Institute Electrical Engineers, 1913, 51, 213] gives an analysis of a sludge deposited by a transformer oil when used in an auto-starter for a considerable period. I have carried out detailed experiments on a similar sludge. The original oil in this case was known to be a straight cut oil. The sludge was found to consist of 10.1 per cent of oxykerotenes and 79.9 per cent of oxyasphaltenes. The oxyasphaltenes, after gentle heating for a month, were converted into oxykerotenes, portions of which were insoluble.

e.g. the asphaltenes both from the coal and from a sample of a natural kerite were soluble in carbon disulphide, benzene, phenol, nitrobenzene, chloroform pyridine, etc., but were insoluble in petroleum ether, ethyl ether and ethyl alcohol.

The analysis of the whole unfractionated precipitate is given in Table II and, for the sake of clearness, is contrasted with a natural kerite, a naturally produced kerite and a synthetic kerite.

It has been found that upon prolonged heating a portion of the kerotenes becomes insoluble in pyridine or any known solvents; by inference it is believed that

[3] Allen (*Pet. Rev.*, April 26, 1913) and Redwood ("Treatise on Petroleum" 1, 275) consider the black precipitate formed in paraffin wax, when heated with sulphur, to be carbon, but I have demonstrated that this precipitate dissolves entirely when heated with benzol; it therefore cannot be carbon. The addition of an excess of ether or pentane to this benzol solution throws down a black precipitate, which is simply a thioasphaltene.

[4] D. T. Jones: *Jnl.* Soc. Chem. Ind. (1917) 36, 3-7; Jones and Wheeler: Chem. Soc. *Trans.* (1916) 109, 707, 714; Burgess and Wheeler: Chem. Soc. *Trans.* (1910) 97, 1917-1935; (1911) 99, 649, 667; (1914) 105, 131-140; Clark and Wheeler: Chem. Soc. *Trans.*, 103, 1704-1713; R. Maclaurin: *Jnl.* Soc. Chem. Ind. (June, 1917); Pictet and Bouvier: *Compt. Rend.* (1913) 157, 779-781; Pictet, Ramseyer and Kaiser: *Compt. Rend.* (1916) 163, 358-361; Fischer and Glund: *Berichte* (1916) 49, 1469-1471; and Fraser and Hoffman: *Tech. Paper* 5, U. S. Bureau of Mines.

[5] Chem. Soc. *Trans.* (1913) 113, 1704-1713.

most of the insoluble portion of coal consists of a true bitumen that has been transformed by gentle heating into an insoluble kerotene, and that a small portion is due to the decomposition products of cellulose, as shown by the formation of phenol upon dry distillation.[6] I have proved that the kerites experimentally produced from petroleum yield by both low- and high-temperature distillation exactly the same products as are obtained under the same temperature conditions from the kerites of coal.

Animal or Marine Remains Make Oil

The following theory is put forward concerning the mode of formation and nature of coal, comparing it at the same time, for the sake of clearness, with the mode of formation of oil.

First, consider a stratum containing a deposit of either animal remains or marine vegetation. These substances, on decomposition, form oil and gas which if contained in a sandy bed are swept away from their source by either gravity or water as rapidly as formed, since neither the animal remains nor the marine vegetation contain cellulosic material capable of forming a spongelike mass, which would hold the oil *in situ* during the decomposition stage.

Second, assume a buried deposit of terrestrial vegetation. Decomposition takes place, resulting in the formation of oil and gas, as in the case of the marine vegetation. However, owing to the cellulosic nature of the material and its porous spongy structure, the oil is kept *in situ* while decomposition proceeds. Accompanying this decomposition there is probably a rise in temperature, which even if not above 212 deg. F. is quite sufficient, as has been proved in the laboratory, to convert into kerotenes the oxy- or thioasphaltenes that are simultaneously formed with the oil. As the process goes on the kerotenes become less and less soluble until they are insoluble in pyridine and quinoline and so remain as a solid in the spongelike mass afforded by the cellulosic structure of the terrestrial vegetation.

It has been recorded by Hodgland and Lief[7] that the algæ on which they made tests contained from 5 to 13 per cent of sulphur. It therefore follows that in those coals that contain algal ingredients in quantity, some undoubted cases of which White[8] puts on record, a larger amount of thiobitumens should be present with a corresponding reduction in the oxybitumens and the cellulosic residues.

Soluble Bitumen Will Be Greatest in Peat

According to this theory the amount of soluble bitumens should be greatest in peat and should decrease through lignite, sub-bituminous, bituminous and semi-bituminous coals to anthracite. This indeed is the case. It is interesting to note that where pure kerite deposits have been found, they have nearly always been mistaken for coal. It took ten years' litigation to decide whether the New Brunswick oxykerite was coal or bitumen. Similar instances are given by L. L. Hutchison[9] in the case of the Jackfork Valley, the Impson Valley, etc. A similar case of a thiokerite is a deposit in Nova Zembla, where coal suitable for metal smelting was reported to be situated near an ore deposit. Samples of this deposit were forwarded to me and yielded on analysis: ash, 0.72 per cent; sulphur, 15.54 per cent; nitrogen, 0.76 per cent. The sample possessed a pronounced luster and had the appearance of a bright soft coal. It was, however, totally insoluble in solvents and on heating gave off little gas. No oil whatever was evolved; in fact, the sample behaved in nearly every respect like anthracite. The volatile matter was only 1.8 per cent. However, from a comparison with certain experiments then in progress, it was decided that the material was a kerite.

A subsequent geological examination showed the deposits to occur in small lenses in a metamorphosed deep-sea limestone, which contained none of the depositional associates of coal, and, in fact, confirmed the oil origin of the deposit. This is regarded as a pure sample of the thiokerite. It probably is true that certain so-called coals from Colombia that have a sulphur content of 13 per cent are simply thiokerites.

Point of Differentiation from True Coal

The main difference between these so-called coals and true coal rests in the fact that the former possess no cellulosic residue which upon distillation can produce phenols, as is the case in true coals. It is conceivable that a kerite produced from microscopic vegetal remains containing some cellulose—but not in sufficient quantities to act as a sponge—would yield phenols on dry distillation; this would be but another connecting link between coal and petroleum.

Petroleum oils, such as occur in nature, are clearly not derived from coal; but given a quantity of vegetal material, petroleum may be produced under a given set of circumstances if no cellulose is present and coal will be formed if the vegetal matter contains sufficient cellulose to form a sponge.

[6]See Jones and Wheeler: Chemical Society *Transactions*, 1916, 109, 707-714.

[7]*Journal of Biological Chemistry* (1915) 23, 287-297.

[8]David White: U. S. Geological Survey, *Bull.* 29, 48 *et. seq.*

[9]Oklahoma Geological Survey, *Bull.* 2, 81-89.

New England Rail Shipments for August

THE rail movement to New England continued its recovery during the week of Aug. 28. As reported to the Geological Survey by the American Railroad Association, the number of cars forwarded through the five rail gateways of Harlem River, Maybrook, Albany, Rotterdam and Mechanicsville totaled 5,792. This was an increase of 423 cars, or eight per cent over the preceding week, and was almost double that of the corresponding week of 1919.

CARS OF BITUMINOUS COAL FORWARDED THROUGH HUDSON GATEWAYS FOR NEW ENGLAND (*a*)

Week Ended:	1920	1919
Aug. 7	6,732	4,643
Aug. 14	4,860	5,064
Aug. 21	5,369	3,772
Aug. 28	5,792	3,182

Coal Mining Institute to Hold Annual Meeting in Pittsburgh

THE ANNUAL meeting of the Coal Mining Institute of America will be held Dec. 8, 9 and 10, in the Chamber of Commerce Auditorium, Pittsburgh, Pa. Over 1,000 prominent coal men are expected to attend and discuss questions of import to the industry. A portion of the third day of the meeting will probably be spent in an inspection trip to the world's largest byproduct coke plant at Clairton, Pa. For further information address President Joseph Williams, Altoona, Pa.

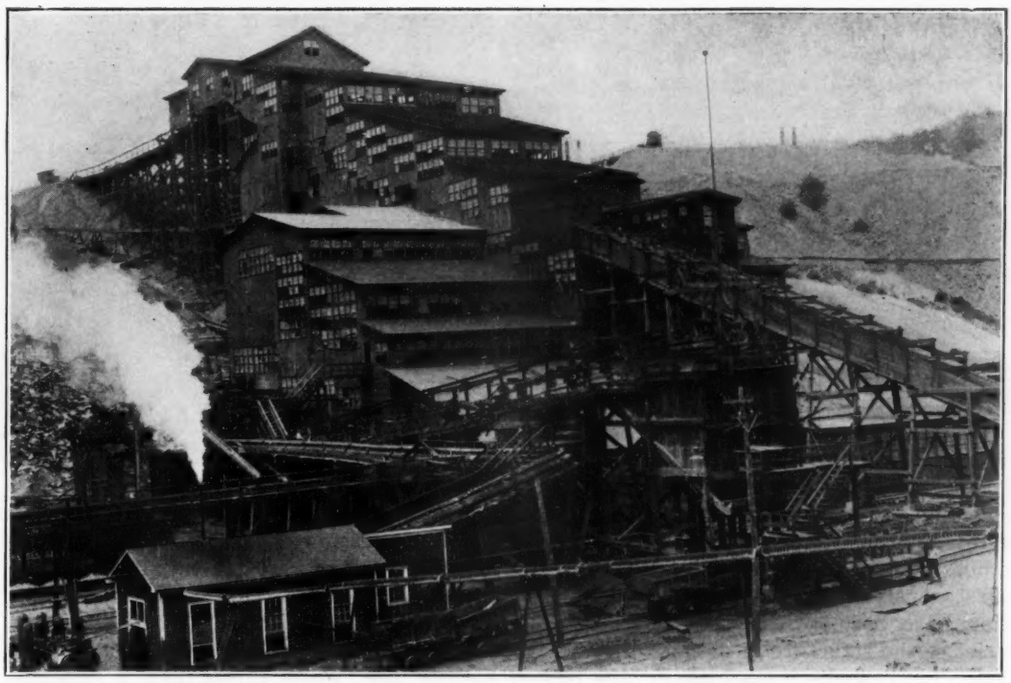


FIG. 1.

Silver Creek Breaker

The settling tank is behind and largely obscured by the cloud of steam in the foreground. Also in the forefront on the right is a long rock chute running from the breaker to a rock pocket not visible in the illustration.

Modernized Breaker with Hand Pickers, Spirals, Jigs and Concentrators

Although Old and of Wooden Construction This Breaker Is Modern Both in Methods Followed and Results Obtained—Both Dry and Wet Preparation Is Here Employed and Hand Picking Practiced Wherever It Will Give Better Results Than Can be Attained by Mechanical Apparatus

By D. C. Ashmead,
Wilkes-Barre, Pa.

At its Silver Creek colliery the Philadelphia & Reading Coal & Iron Co. has in operation an old breaker, yet one that internally has in every respect been modernized. The original designer of this structure could he compare his first plan with the present building would doubtless find little similarity between the two. Were it not for the title on the drawing he might readily fail to associate the design of the now existing structure with that first made for the Silver Creek breaker.

With every advance in the art of coal preparation the Philadelphia & Reading Coal & Iron Co. has kept pace. Not only this, but it has itself advanced the science by experiments of its own. The knowledge thus gained

FIG. 2

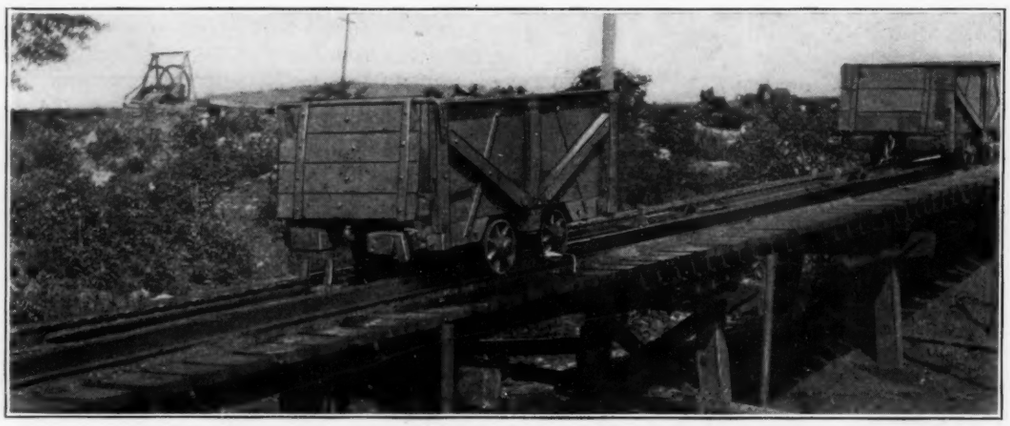
Head of Breaker

The air-operated kickback dump at the top of the breaker occupies the center of the illustration. A similar dump, not shown, is used to discharge slate cars to the rock chute.

FIG. 3

Wheels Are Sprayed

As the cars are pulled upward by the car haul, the wheels are sprayed with water which permits the cars to travel by gravity over an easy grade.



has been embodied in this breaker, and every appliance has been installed that would tend to lessen the cost of preparation or improve the character of the output. The building in one respect has not partaken of the progress made in the methods of preparation, for it is still of wood, as when first constructed. In general breakers of recent erection have been constructed of steel. However, the material of the structure is in this case no index of its efficiency for it shelters machinery and equipment of the most modern type.

The exterior of the building is shown in Fig. 1, and from this illustration some idea may be gained of its enormous size. One great advantage possessed by this structure, as will be immediately noted, is the fact that it is practically a sidehill construction, allowing the mine cars to come directly by gravity from the shaft to the head of the breaker, consequently the expense of hoisting the coal to the top of the building by means of car haul, dragline or gunboat is eliminated. This circumstance not only saves the actual cost of hoisting but also decreases the amount of handling to which the coal is subjected and consequently lessens the degradation incurred.

From the shaft landing the cars are dropped by gravity to a kickback dump operated by compressed air. This has a capacity of four cars per minute, each car having a capacity of 127 cu.ft. This kickback is shown in Fig. 2, which is an illustration of the interior of the head of the breaker. After discharge the cars coast to the foot of the car haul, which raises them a sufficient height to permit of their gravitating to the head of the shaft.

Wheels Are Sprayed to Lessen Friction

One peculiarity of this car haul is the fact that as the cars are moving upward the wheels are sprayed with water. This is shown in Fig. 3, which illustrates a mine car passing the spraying point. This spraying is performed in order that when the cars reach the top of the haul and are released, they may operate more freely, since it is well known that cars will move easier when both the rails and wheels are wet. Spraying

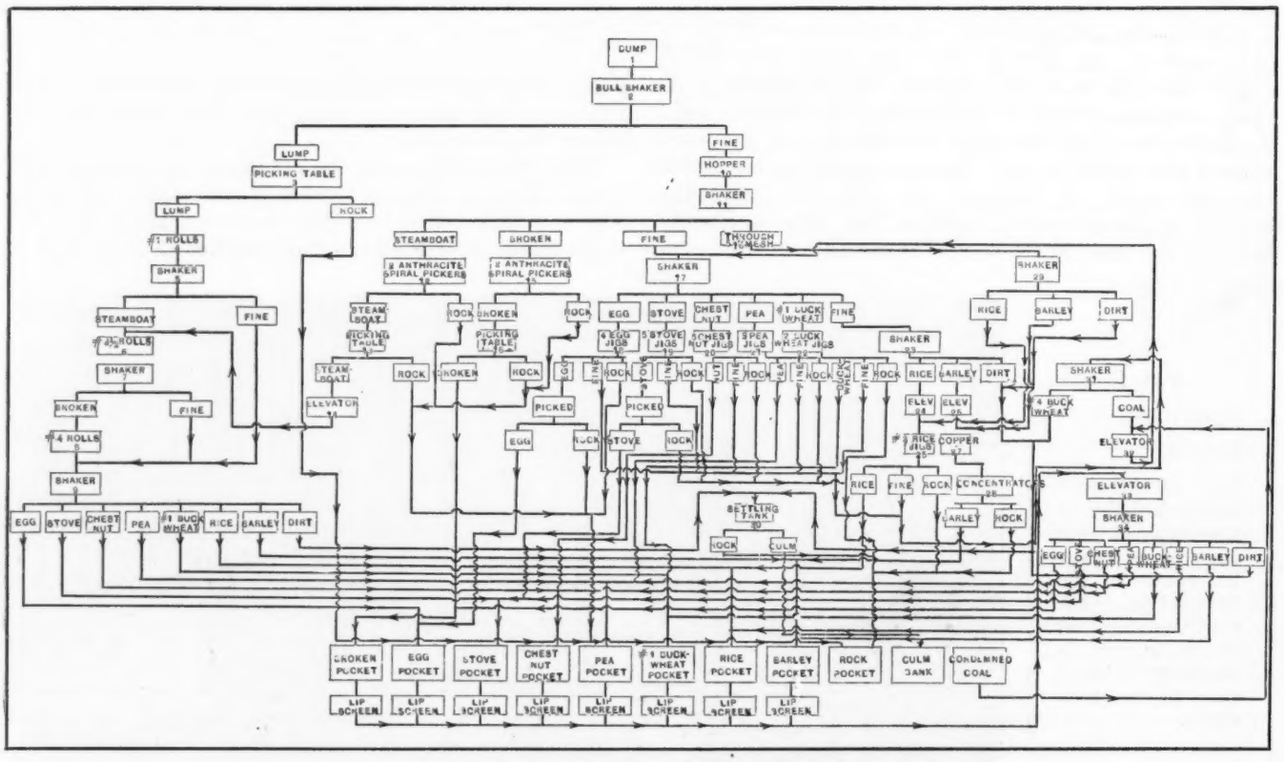


FIG. 4. FLOW SHEET OF THE SILVER CREEK BREAKER
Numbers on this diagram correspond with similar numbers in the text so that the sequence of operations may be readily followed from the description

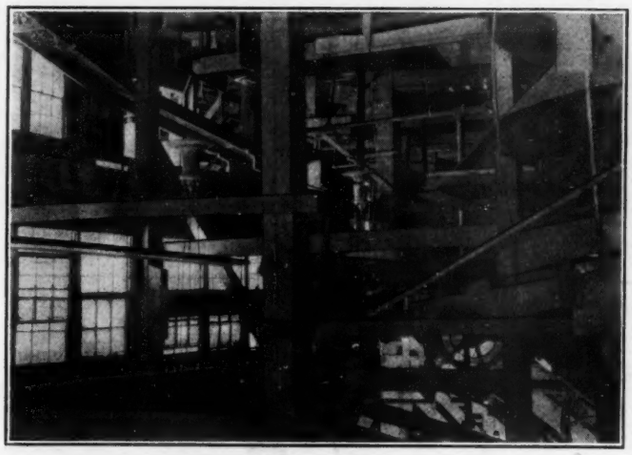


FIG 5. PREPARATION EQUIPMENT IN BREAKER
Spiral pickers occupy the left and shaking screens, and washing tables for treating fine coal the center of the illustration

permits the company to employ a lighter grade for the cars to run over and consequently reduces the elevation to which it is necessary to raise them in order that they may be dropped by gravity to the shaft head.

The head of the breaker is so designed that if it is desirable, rock cars from the mine may be dumped over a second kickback, which likewise is operated by compressed air. The rock discharged passes directly into the main rock chute of the breaker and is conveyed by it to one of the rock pockets near the bottom.

The method of preparation employed in this breaker is interesting, for it embraces practically all the most modern ideas on this subject. It is both wet and dry, and almost entirely mechanical. Manual labor is, however, employed where it is more efficacious than mechanical methods. The main object sought by the designers was not only to produce a coal that would sell readily and bring a profit, but to produce a finished product that would be attractive not because of its cheapness but because of its excellent quality. It is not profitable for a consumer to burn a cheap coal containing a high ash, whereas it is desirable to burn one with a lower ash. Ash not only does not generate heat but actually wastes the heat which the fuel produces.

In the accompanying flow sheet the method of preparation may be followed step by step. In describing it figures in parentheses will be inserted from time to time, referring to corresponding figures on the flow sheet. This will enable the reader to follow closely the methods employed and their relations one with the other in the process of preparation.

As soon as the coal is discharged (1) from the car it is run over a bull shaker (2) and the first main separation made. All coal smaller than lump passes through this screen, while lump and larger go over. The coal that passes through is treated by the wet process, while that which passes over is prepared dry. The dry preparation will be described first.

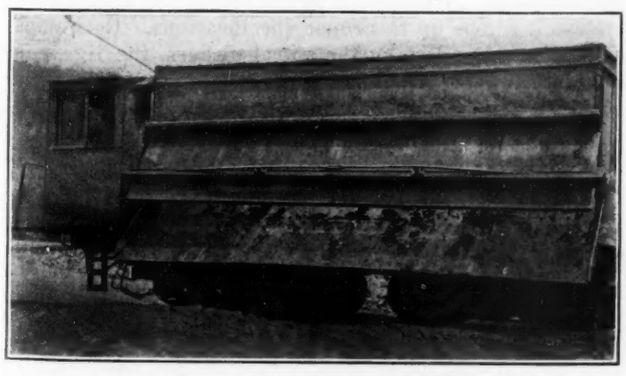


FIG. 6. CAR USED FOR THE DISPOSAL OF ROCK
Two of these dump cars can handle as much as 600 tons of rock in one day. Each is of 20 tons capacity

Lump coal passing over the bull shaker goes to a picking table (3), where the rock is removed by hand. This is the only point in the entire dry preparation where rock is removed. Some lumps of rock are so large that it requires the united effort of from four to six men and boys to dump them into the rock chute by which they are transferred to the rock pocket. The cleaned lump next goes to a No. 1 roll (4), where it is crushed to steamboat and finer. From that point it goes to a shaker (5), where the steamboat coal is removed and sent to a No. 3½ roll (6), where it is crushed to broken, and from which it passes to a shaking screen (7), where the fine coal is separated and from which the broken is sent to a No. 4 roll (8), after which it is again sent to a shaker (9).

At this stage of the process the fine coal from the steamboat (5) and the broken shakers (7) is passed to the shaker (9) and all commercial sizes separated on this multiple-deck screen. The egg, stove, chestnut, No. 1 buckwheat, rice and barley coal from this point go to their respective pockets, while the buckwheat No. 4 passes through a settling tank (30). No further treatment or preparation is necessary for any of this coal.

Wet Process for All Coal Below Lump

The second division of the preparation, namely, the wet process, is performed on that part of the coal which passes through the bull shaker (2). This coal goes to a hopper (10) and then is fed automatically to a three-deck shaker (11). Here the steamboat is taken off the upper deck and the broken off the second deck, while the smaller sizes pass over the third deck, except that portion that passes through holes ⅛ in. in diameter.

Two anthracite spiral pickers (12) are employed for removing slate from the steamboat coal, after passing which it is fed to a picking table (13), where it is further cleaned. It is then elevated by a bucket conveyor (14) and discharged to the No. 3½ roll (6), which has been already mentioned in connection with the dry treatment. After passing the roll this coal is treated exactly as is that which has already been described.

From the second deck of the shaker (11) the broken coal is fed to two anthracite spiral pickers (13). Coming from these in a semi-cleaned condition, the broken coal is finally cleaned by hand on a picking table (16). The discharge from this table goes to the broken coal pocket and is ready for shipment. Under normal conditions sufficient orders are received for this size of coal, so that it is not necessary to crush it to smaller grades, as is done in the case of the broken made in the dry preparation. If sufficient orders were not on hand for this coal, it could be sent by means of an elevator and chute to the No. 4 roll (8) and be treated in a manner similar to that accorded the rest of the coal that passes through this machine.

From the third deck of the shaker (11) the fine coal goes to another shaker (17), where it is sized on five decks. The egg and stove coal go to the left hand side of the breaker while the smaller sizes proceed to the right hand side. From this shaker the egg coal passes through four P. & R. jigs (18). The product is then picked in picking chutes, from which the material proceeds to the egg pockets. The rock from the jig also is

FIG. 7. DAM WHERE FINE MATERIAL FROM BREAKER IS DEPOSITED
Fines are sluiced into this pond, and the water is allowed to drain off. Material of this nature that is worthless today may be valuable tomorrow and the operator does well to retain it on the surface where it may be reclaimed at small cost and in good condition

hand-picked, so that no coal may by accident find its way into the rock. Stove coal from the shaker (17) receives exactly the same treatment accorded to the egg, except that five jigs (19) are required to clean this material. It is thus evident that the breaker produces more stove coal than egg.

On the right-hand side of the breaker the chestnut coal is passed through five jigs (20). It is not necessary to hand-pick this material, as is the case with the egg and stove, and it is consequently sent directly to the chestnut-coal pocket. The pea and No. 1 buckwheat receive the treatment accorded to the chestnut, except that they do not require as many jigs for their washing. The pea coal requires three jigs (21) and the buckwheat, two jigs (22).

Fine coal from screen 17 is sent to a two-deck shaker (23) where the rice, barley and No. 4 buckwheat are made. The rice is taken by an elevator (24) to the rice jig (25), from which the cleaned coal goes to the rice pocket. Two jigs are necessary for this operation.

Instead of passing the barley directly into pockets, as was the former custom, it is now raised by an elevator (26) to a hopper (27) and fed to Deister-Overstrom coal-washing tables (28), where the ash content is considerably reduced. These tables each have a capacity of approximately nine tons of barley per hour, or seventy-two tons per eight-hour day. Excellent results have been attained with these washers and the ash content has been reduced 50 per cent, making this coal much easier to market than it was before it had this treatment. So pleasing have been the results obtained with these tables that a large number of them will be installed soon.

Now, referring back to the first shaker (11) the treatment accorded the fine coal that passed through a $\frac{1}{8}$ in. mesh has not yet been described. This material passes through a two-deck shaker (29), where the rice and barley are separated, the rice going to jigs (25) and the barley to the barley hopper (27) for treatment on the concentrating table (28). The No. 4 buckwheat, which passes through the bottom deck of this shaker (29), goes to the setting tank (30), as does the fine material from shaker 23.

In treating coal in the jigs a tendency toward degradation develops, consequently a considerable amount of fine material is produced. This fine coal is separated from the sized grades and is fed to a shaking chute passing beneath the jigs to a shaking screen (31) which separates the No. 4 buckwheat from the balance of the material. The buckwheat is then sent to the settling tank (30), while the larger sizes are elevated by a bucket elevator (32) and delivered to shaker 17 for re-sizing and re-treatment.

From the coal pockets the coal passes over lip screens before being loaded into railroad cars. The undersized material passing through these screens is taken by chute to an elevator (33), by which it is delivered to a set of shaking screens (34) having seven decks, making coals of proper sizes, which again pass to their respective pockets, except that the No. 4 buckwheat there made goes to the settling tank (30).

In case any coal should be condemned, it is delivered to an elevator (32) and sent back to shaker 17 for re-treatment. No coal is permitted to be shipped out unless it comes up to proper specifications. Rock separated from the coal by the spiral pickers, the jigs, concentrators and by hand is taken by shaking chutes to a dragline conveyor on the outside of the building. This delivers it to a rock pocket. The heavier material removed from the settling tank by a bucket elevator is delivered to the dragline and also is taken to the rock pocket. The water from the settling tank is drawn off to a silt pond, from which it filters off, leaving behind the fine material, which is mainly fine coal. From the rock pocket the material is taken by large electric dump cars to the rock dump. These cars have a capacity of twenty tons each and the two in operation often handle as much as 600 tons per day.

Almost enough water is hoisted or pumped from the mine daily into large tanks near the head of the breaker to meet the breaker's requirements and only a comparatively small amount is used over again. The coal company has made arrangements so that in case there is an oversupply of small sized coal, this may be placed on a storage pile by means of dragline scrapers. It is removed from these piles for use as boiler fuel or is loaded into railroad cars for shipment to market.

John George Leyner

JOHN GEORGE LEYNER, of Denver, Col., was killed in an automobile accident near that city on Aug. 5, 1920. Mr. Leyner was a pioneer in the development of rock-drilling and mining appliances, and an inventor who contributed much to the industrial progress of his age. Through his inventions the rock drill has passed from the percussive to the hammer stage and has become little larger than a pneumatic tool.

JOHN G. LEYNER
Inventor of rock-drilling and mining appliances.

The piston type of drill is necessarily heavy and limited in drilling capacity. Mr. Leyner advocated the use of the piston as a hammer only, to strike the end of the steel or an intervening medium connected with it. He introduced water jet passing through the piston into the bit for clearing the hole cuttings. His system patent was taken out in 1903 and his method patent in 1904.

Incorporating the Leyner Engineering Works in 1902, Mr. Leyner built shops at Littleton, Col., soon thereafter. After twelve years of difficulties, both mechanical and financial, all patents to his inventions were taken over by the Ingersoll-Rand Co., and the manufacture of his machines was transferred to this company's works.

It has often been said that all that the genius of Leyner required was the experience and mechanical skill of the Ingersoll company to make a success of this new principle. The Jackhamer, which might almost be placed in one's overcoat pocket, is built on the Leyner principle. The water Leyner drill, now known as the Leyner-Ingersoll, is also widely used for mining and tunneling, and holds the world record for fast tunnel driving.

Leyner's other inventions include the drill sharpener bearing his name and the Little Tugger hoist used in mines and shipyards. He also built the original machines used for producing shredded wheat, while his latest invention was the "Linapede" or Leyner farm tractor. He was engaged in the development of this at the time of his death. He was the son of Peter A. Leyner, who was born in Boulder County, Col., in 1860, being the first white child born in that county. He leaves a widow and three adopted children.

A product of the great West, Mr. Leyner was a man of strong physique, a worker with both hands and head, stubborn and determined in accomplishing results. It was this faculty that helped him bring his radical idea concerning the rock drill to the point of fruition. Like most inventors his main strength was mechanical, though his vision was laid on practical lines and in advance of conventional methods. The mining industry owes much to Leyner's genius, the world much to the mining industry. To have reduced the cost of removing rock and ore, as Mr. Leyner did, is an achievement which should place him among America's great inventors.

Tidewater Movement Slackens

CARS of bituminous coal dumped over tidewater piers during the week ended Sept. 4 are reported to the Geological Survey by the American Railroad Association as 25,275. This was a decrease from the preceding week. Dumpings increased at New York and Philadelphia but decreased slightly at Baltimore and Hampton Roads.

CARS OF BITUMINOUS COAL DUMPED[1] WEEKLY OVER TIDEWATER PIERS

Week Ended	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Total
Aug. 7	10,065	3,151	4,580	9,394	274	27,464
Aug. 14	9,314	3,158	4,100	9,636	291	26,499
Aug. 21	9,227	3,363	3,597	8,852	468	25,507
Aug. 28	9,927	3,632	3,322	8,830	405	26,116
Sept. 4	10,109	3,745	3,191	7,672	588	25,275

[1] Includes coal destined for bunker, for New England, or other coastwise and local use, and for export.

Reports furnished the Geological Survey by the courtesy of the Tidewater Bituminous Coal Statistical Bureau indicate that total dumpings from tidewater piers during the week ended Aug. 28 amounted to 1,319,000 net tons.

TIDEWATER BITUMINOUS COAL SHIPMENTS, WEEK OF AUG. 28
(In net tons)

Destination	New York	Philadelphia	Baltimore	Hampton Roads	Charleston	Tota
Coastwise to New England	100,000	7,000	40,000	198,000	.....	345,000
Exports	.....	86,000	103,000	310,000	31,000	530,000
Bunker	88,000	9,000	17,000	54,000	3,000	171,000
Inside capes	.....	47,000	24,000	8,000	.....	79,000
Other tonnage	186,000	.....	.....	7,000	1,000	194,000
Total	374,000	149,000	184,000	577,000	35,000	1,319,000

Considerable quantities of coal shipped under Service Order No. 11 for New England account have not been dumped for lack of vessels at the ports. On Aug. 30 the coal on hand at Hampton Roads consigned to New England was reported to the American Railroad Association as 126,000 net tons, whereas the capacity of vessels available for loading this coal was 8,400 tons.

Why Americans Fail to Get French Rehabilitation Contracts*

French Want to Build to Accord with Traditions—Resent Offers of Help—Await Assessment of Damage—Would Build in Order of Need

BY E. J. MEHREN†

WHY have not American contractors participated in the rebuilding of the devastated regions of France? There were predictions at the time of the armistice of great opportunities for them. Few of these opportunities have been realized. There are a number of reasons:

(1) The French want to rebuild according to French ideas, having regard also for the traditions of the ruined cities. These ideas are incompatible with the mass production proposed by some American contractors.

(2) The French have a pride in their ability to carry on construction. They resent the suggestion that they need help. There is, so far as I can learn, only one construction company in France that represents American capital—and it is in reality a French company manned by French engineers and contractors. There are only three Americans in a responsible force of probably fifty.

BUILDING MUST WAIT ON COST DETERMINATION

(3) Construction can be taken in hand only as fast as the damages can be determined. This is an enormous task and necessarily can proceed only as rapidly as the relatively limited number of commissions of qualified men, familiar with local conditions, can work. With the fluctuations in wages and material prices, too, these damage credits are subject to frequent change. Under the law, an owner who rebuilds within 50 km. (31 miles) of the original site is paid the reproduction value as of the present date. Necessarily the estimate must be revised if wages and material costs change. A 20-per cent credit is wanted as soon as the damages are determined, and other advances made as the work proceeds. If an owner chooses not to rebuild, or to rebuild at a distant point, he receives damages based on values in 1914.

(4) The French Government wisely decided to concentrate on work in the order of its economic importance: First, the reclamation of the land, and the erection of temporary dwellings, then the restoration of the building-material industry, followed by the reconstruction of factories and the construction of permanent dwellings. The last feature has hardly yet been taken in hand. Therefore plans for rebuilding whole towns in permanent construction were not in order early in 1919 and are scarcely in order today.

(5) Building materials are scarce and must be distributed so that in all districts and towns progress may be at about the same rate.

There are other reasons, but these are the really important ones.

It is worth noting that the financing of work was not referred to until the question was raised by the visitor. In other words, the various factors above mentioned have always disposed of the American contractor before the question of finance was reached. The traditional position that all flows to the man with money did not hold here. Of course, France would still like to have American credits, but only for the purpose of enabling it to pay for raw material when the exchange has returned to normal or materially improved.

The financing of contracts is, nevertheless, a matter of grave importance; not due to failure to get estimates promptly but to the necessity of carrying a large material supply. This applies to the relatively large operations—not to the building of one or two small dwellings, for which material is secured from the Government material depots. The root of the trouble is a combination of inadequate transportation facilities and material shortage.

One must wait three months for deliveries. Consequently the large contractors are following the practice of taking work only in a given locality and carrying there large stocks, which are delivered to the building sites with their own truck fleets. The capital required is about 50 per cent of the amount of work done in a year. Sub-contracting, with the upset conditions, is very unsafe. For that reason most contractors do all the work themselves, and even go so far as to make the window frames, doors and trim in their own shops. Material, it should be said, is paid for only after it has been built into the job.

Contracts are all on a unit-price basis, the bid price being considered a base price which is adjusted every three months in accordance with the fluctuations in labor and material prices. The contracts are made with individual owners or, for dwellings, with co-operative building societies, the membership of which is composed of those whose damages have been determined by the Government commissions. One may get a contract to build a whole village but, unless one wishes to carry the risk, only if the appraisal work has been finished and the owners have all joined the co-operative society. The Government advances go into the treasury of the society, which in turn pays the contractor.

There is still much work to be done. In fact, only a beginning has been made, but the work is not likely to be done by American contractors. If they have capital to be employed they may use it in France if they want to lose their identity and organize as a French company with French officials. Even then they will not get work or succeed in what they get unless they are willing to respect French customs and acquire some of that tact to which we are largely strangers.

AMERICANS SHOULD AVOID SELF-ASSERTION

The last remark is made advisedly. Many who go to France carry a superior air. It is naturally and rightfully resented. "I will bring a hundred Americans over here and show you how to do construction work," was said by the representatives of a strong American company to a French official. What chance would that organization have to get work, no matter how heavily its arms were laden with gold? I could cite other cases of boorish assertion of superiority—but this case will suffice. Our help will be welcome; but we must go there to help only. The French must do the work in their way. That does not mean that American construction methods cannot be used; they can be, if tactfully proposed and where conditions are suitable.

With reference to reconstruction it is to be noted that it is proceeding much more rapidly than the work in Belgium. In Ypres, for instance, only work in the cities and towns is in progress. That is not true of France. Work of every kind is going forward and the progress is rapid in the French Republic.

*From *Engineering News-Record.*
†Editor, *Engineering News-Record.*

Discussion by Readers

Edited by
James T. Beard

Ambition vs. Faultfinding in Workers

VIEWING the question of the treatment accorded a worker who applied to his superintendent to be transferred to another department, and judging the case from the facts stated in *Coal Age*, Feb. 12, p. 327, and the comments of W. H. Noone, July 8, p. 72, one is inclined to the opinion that the superintendent was inconsiderate in his dealing with this employee. However, it is my belief that there is more connected with the case than has been brought to light.

In the absence of more accurate knowledge, it would be unfair to comment further on the superintendent's action than to say, as Mr. Noone has remarked, that there was no occasion for the use of harsh language on his part. There is a right and a wrong side to every question and this little instance teaches the lesson that had a little reason been exercised between the man presenting his request and the superintendent to whom he applied, the unpleasant occurrence would not have taken place.

Unreasonableness is the cause of all social, industrial and national ills, and it is surprising how little this faculty is cultivated among men. Consider, for a moment, the possibilities surrounding the case on either side. A student of human nature realizes that the temperaments of men are varied, so that it is hardly possible to find two persons of exactly the same disposition.

The Official and the Worker

A large class of men, acting officially, take exceeding delight in the display of lordly authority. They foolishly think that their position gives them such a license. Abuse of workmen is to them an indication of power. At other times it is a poor effort made to conceal some weakness on the part of the official.

On the other hand, there are workmen who have an unreal ambition. In order to attain their ends, they will scheme against their employers' interests and not hesitate to take any unfair advantage. With such men, faultfinding is a general practice. The most unskilled labor in the world is that which is prone to find fault at every turn. It is the poor worker that lays his failure to produce to the tools given him or the conditions about him. Such are the men who have the least brains and make the least use of what they have.

There is little hope for improvement in industrial as well as in social affairs, until people get this habit of faultfinding out of their dispositions and cultivate forebearance toward one and other. The get-together spirit, devoid of all sham and deceit, must possess both employers and employed, before progress will be assured. While we are not warranted in forming such a conclusion in respect to the case cited, it is possible that this worker was a faultfinder.

Looking back over our own careers, how many of us fail to realize that, at some time or other, we have imagined ourselves overlooked and suffered the disappointment that such an occurrence as this brings to the truly ambitious? Again, how many of us, acting in an official capacity, have not truly fulfilled our obligations to those in our employ? It is easy to see the faults of others but often difficult to discover our own. It is the height of hypocrisy to be continually sitting in judgment on the acts of others when we fall short of our own high ideals.

It is hard to believe that any fair-dealing superintendent would be so lacking in judgment as to roughly turn down the application of a worker who was really desirous of improving his condition by seeking to be transferred to another class of work for which he was fitted, when the opportunity was open. Let us strive to remember that, whatever our position in life, it should be our purpose to serve others. It is true that the superintendent is as equally in the service of his workers as they are in his service. The recognition of this fact will develop a co-operation that builds for success.

Ladysmith, B. C., Canada. WILLIAM WESNEDGE.

Problems of the Mine Foreman

SPEAKING of maintaining a uniform output of coal, there are two problems that confront the mine foreman in this respect. Briefly stated, they are: (a) The advantageous distribution of the men, and (b) providing for the future development of the mine.

All miners are not alike. There are those who will never give their best until this is compelled by reason of their circumstances. Again, there are those who are good workers as long as they are given good places but quickly lose their ambition for work when face to face with any difficulty. As mine foreman for ten years, I have been deceived many times in this respect. Men whom I thought could make a fair day's wage in any place in the mine have proved useless when put to work under unfavorable conditions.

Men of this second type may work well when given good places, but when difficulties arise they are the first to grumble and complain. They are not satisfied with lying down on the job themselves but will use all their influence to have others do the same with the idea of getting a little extra allowance.

Distributing Good and Bad Workers

Now, in regard to the proper distribution of men, I have obtained better results by placing the more indolent and careless workers in company with those who are more competent and active. As has been suggested, they have the example and receive the assistance of their fellow workers. There is, however, another reason for sandwiching these poor and often careless workers in with good men.

It will generally be found that where any trouble arises regarding the price being paid for deadwork such as taking down roof, lifting bottom, or handling

refuse in the seam, a miner of this class will depend more on his ability to drive a good bargain than on his skill in overcoming the difficulty. I have known miners that would rather quit than mine coal next to a good man, for the simple reason that the comparison of his own work with that of the other man would spoil his chances of getting any allowance. The foreman would simply point to the earnings of the man in the next place and say that if he had made the same effort *his* pay would have been just as large.

Every foreman knows that it is a simple matter to add a few cents to the price of labor but it is a different proposition to take it off again. He is mighty lucky if he can get back to the former price without having a strike on his hands. The foreman must be a good judge himself and his knowledge and experience of mining must be such as to enable him to estimate correctly the work done and his decision must be final.

Keeping the Development Well in Advance Necessary to Maintain Output

Aside from the proper distribution of his men, a problem of equal importance and perplexity that the foreman is compelled to face is keeping the development well ahead of the present work. When a miner finishes his place, there must be another place waiting for him. Double-shifting the narrow-work to make room for more places is frequently necessary. The trolley line must be extended and new parting or sidetrack built. In addition, the development will often require changes in the circulation of the air. Too often it happens that these requirements for maintaining a uniform output are not considered but are left until a drop in tonnage calls attention to their necessity.

In planning for the future of a mine, it is most important to consider the concentration of the work, in order to effect economy in haulage and the supervision of the men. This will also reduce the cost of maintenance of roadways and air-courses. Where conditions are such that miners have to wait for cars many of the best men will leave for mines where the service is better. It is a mistake, however, to carry concentration of work to the extreme and crowd too many places into a single section, which will congest haulage.

Factors Affecting a Miner's Tonnage

In making a just comparison of the work performed by different miners, it is necessary to consider not alone the physical conditions in their places, but regard must be had to the time consumed by the men in going to and from their places and the quality of the air furnished them. Men working on the last of the air must lose considerable time waiting for the smoke to clear after a blast is fired. Neither are those men able to perform the same work as men working on a fresher current. A miner working in a place handy to the shaft or mine entrance may load a car or two while another miner is getting to his place.

In estimating on what is required to maintain uniformity of output, all of these factors must be carefully studied. The allotment for each district must accord with the conditions, or confusion and disappointment will result. After all, no matter how anxious a foreman may be to produce a maximum tonnage his success will depend largely on the ability and faithfulness of his assistants, firebosses, drivers and daymen. Much of his own skill will lie in the training of these men. The foreman who is continually calling up on the 'phone to ascertain why the coal is not coming to the shaft bottom, will not succeed like the foreman who makes regular visits to the working faces while he plans and thinks out schemes to expedite the work by making the men more efficient in its performance.

Plains, Pa. RICHARD BOWEN.

Attention to Details in Coal Production

THE question of maintaining a uniform output of coal in a mine depends primarily on the proper distribution of men referred to in *Coal Age*, July 29, p. 239. But, without denying the necessity of properly distributing the men with a view to securing a constant supply of coal from each section of the mine, I want to say that of even greater importance is giving the closest attention to every little detail of the work to see that things are kept moving regularly and that there is no delay waiting for cars or supplies of timber, tracking, etc.

One great cause, indeed the chief cause of the dropping off in the output of a mine, is the failure on the part of a foreman to provide a sufficient development in the live workings. The headings must be advanced to provide new places for the men as quickly as the old places are finished and abandoned. It frequently happens, however, that the foreman is handicapped in this respect by a faulty condition in the strata. Or, it may be that his efforts are restricted by the limited means placed at his disposal. In either case there is bound to result a falling off in the daily tonnage.

Disadvantages Due to a Lack of Concentration of Work

Another factor that is responsible for the decrease in output of coal is the lack of concentration of the work. Owing to one reason or another, the men have become scattered over a large area. The result is that it is impossible for the foreman or his assistant to give them the necessary supervision to insure good work. The supply of cars to the men and the hauling of coal from their working places is rendered more difficult and delays are unavoidable because of the extensive territory a driver must serve under these conditions.

No plan can be prescribed that will meet all conditions, but one of the chief essentials in the economy of operation is such a concentration of the work as to permit of the closest supervision and service. It is only in this way that every little detail pertaining to efficiency can be given the needed attention.

In order to maintain a proper development in many mines, particularly in the working of low coal, it may be and often is necessary to double-shift the productive entries and other advance work. In a large mine, an assistant is often given charge of one section of the mine with authority similar to that of a foreman in a smaller mine. He is held responsible for the condition of his section, the daily output of coal and the safety of the men in his charge.

In some large operations it has been a favorite plan, in the development of a pair of entries, to have the entrymen cut the roomnecks as they proceed, so that the switches can be laid at the mouth of each room. Everything is thus made in readiness and all the rooms on those entries are started at once when the work on another pair of entries is finished. The men are

transferred from the section to be abandoned to these new entries within a day or two.

Another plan is to divide the mine into sections or panels, of say 600 × 1,200 ft., which provides for rooms from 200 to 300 ft. in length. In this plan the rooms are turned off both the entry and parallel. But the first room turned on the parallel is at the inby end or head of the entry and that room is not started until No. 1 room on the entry is finished and the pillar drawn. The man who had been working this room is then transferred to the first room on the parallel, which is room No. 22, assuming all the rooms are driven on 50-ft. centers, and allowing for the necessary barrier pillars flanking the main entries.

Keep the Men's Supplies Moving

In order that these plans shall work smoothly, the foreman or the assistant in charge will have to keep in close touch with his entrymen, and see that they have everything they need so that there will be no delay waiting for supplies. This is quite necessary in the second plan mentioned where the entries must go 1,200 ft. while the first room is being driven up and the pillar drawn back. To accomplish this it will often be necessary to double-shift the entries.

Whatever plan is followed, it is necessary that every condition be met promptly and every obstacle overcome. Wet places, low coal, rolls, horsebacks, clay veins and other adverse conditions must be given prompt attention as they occur.

The disposition of the average mine foreman is to steer clear of adverse conditions and things that mean extra expense and delay production. Too often, entries and rooms are stopped because of some little trouble. The men working the places grumble and want allowances made them. In all this a good foreman will treat men as he would be treated himself.

Pikeville, Ky. G. E. Daugherty.

Negligence or Ignorance, Which?

READING the account given by Donald J. Baker of a gas explosion that occurred at the Renton No. 3 mine of the Union Collieries Co., *Coal Age*, July 29, p. 250, raises the question as to whether this accident was the result of negligence or ignorance on the part of the men in charge and who lost their lives thereby. One cannot help but feel that nine more lives have been needlessly sacrificed.

It is hard for me to understand how, in the operation of a gaseous mine, it is ever safe to permit a fan that has been shut down for many hours to be again started without first examining the mine to make sure that there are no burning feeders below ground. It occurs to me that such may have been the cause of the explosion in this instance. However, the article states that the night foreman ordered the man on the surface to turn on the power, a short time after he had entered the mine with the other men, and immediately when this was done the explosion followed.

In my opinion, it was a great error on the part of the foreman to order the power turned on before he had sent the fireboss around the mine to see that there were no accumulations of gas. It may be, however, that the fireboss was proceeding to make his examination of the working faces in the usual manner.

I assume, from the mention made in the article with respect to the trolley wire, that the belief is the trolley wire was charged when the power was turned on. Of course, the trolley wire extended along the main haulage road and did not approach the working face nearer than 50 or 100 ft. If this wire was charged by the turning on of the power, I would ask why there was not a switch provided at the shaft bottom for cutting off the mine and permitting the power to reach the pumps without incurring the risk of damage in the mine.

It is my opinion that this is an important provision in the safeguarding of a gaseous mine. After any temporary stoppage of the ventilation, not only should the working faces be examined, but every haulage road and traveling way likewise, before it would be safe to turn the power into the mine.

It would seem that a calamity of this kind must happen, in order to make us realize the great need of observing more precaution at all times and take nothing for granted. Judging from the great force of the explosion, as shown by the damage done in the mine and on the surface, it could not have resulted from the ignition of a small body of gas in some cavity or pothole in the roof. Instead, the entire air current was probably charged with gas and the firedamp mixture was at its maximum explosive force. It is fortunate, indeed, that the night force had been prevented from going to work.

Equipment Not Up-to-Date

Although the article states that this mine was "one of the newer developments in western Pennsylvania," it is strange to observe that there was but a single fan installed, when a more up-to-date equipment of a gaseous mine would suggest duplicate fans. In that case, if it became necessary to shut down one fan for repairs the circulation in the mine would be maintained by the operation of the other fan.

Again, the omission of a switch at the shaft bottom, assuming there was no such switch to control the power in the mine, would indicate that the equipment of the mine was not wholly up to date in every respect. Providing a mine with the best type of fan is not to say that the mine is well ventilated. The fan may be surrounded by a well built concrete structure, while the ventilation at the working faces is deficient.

To my knowledge there are many mines where the fans are circulating 300,000 cu.ft. of air per min. in the main airways, while the current sweeping the working faces is so sluggish that one can hardly tell the direction in which the air is moving. If proper airways, good doors and stoppings are not provided in the mine, there is little benefit to be derived from a large volume of air put in circulation by the fan.

Again, a truly up-to-date mine that is generating gas in any considerable quantity will not be dependent on electrical power alone for the operation of the fan. At some critical moment, the electrical power may fail, the fan be rendered helpless, and the circulation in the mine cease. This would mean extreme danger underground, unless steam power is available for driving the fan and maintaining the circulation in the mine.

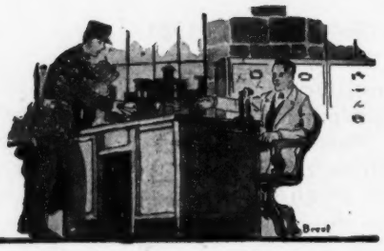
It is worthy of note that, at large collieries where great changes have taken place in the equipment, the steam lines leading to the fans are still to be seen. It has happened during severe electrical storms that operators have been forced to shut down the electrical equipment for the time, but the fan has been kept running by the use of steam on such occasions.

———, Pa. Safety Inspector.

Inquiries of General Interest

Answered by

James T. Beard



Nature and Force of Explosives

KINDLY explain the nature of an explosive and give the two general classes of explosives used in the mines. Also, state the approximate temperature developed and the force exerted by black powder at the instant of explosion. What is the theoretical velocity due to such initial force? FIREBOSS.

Providence, Pa.

An explosive is any substance that is capable of being converted suddenly and more or less completely into gas at a high temperature, the rapid expansion of the hot gas causing a violent disturbance of the surrounding medium. The explosive may be a single elementary substance, a chemical compound or a mechanical mixture of substances that will enter into combination on the application of heat, or on being subjected to a sharp blow. The reaction that takes place between the components or substances forming the explosive is so sudden that the large quantity of gas set free expands in every direction with explosive force.

The two general classes of explosives used in mining are known as "low explosives" of the deflagrating type, such as black powder; and "high explosives," of the detonating type, such as dynamite, nitroglycerine, etc. In the first class mentioned, the full force of the explosion is not developed instantly, the action being communicated from particle to particle by burning. On the other hand, in detonating explosives, the action is communicated instantaneously throughout the mass by a wave of compression that resembles a shock.

In the explosion of black powder, it is estimated that a single volume of gunpowder produces 280 volumes of gas, which, being crowded into two-thirds of the space occupied by the original powder, represents $280 \times \frac{3}{2} = 420$ volumes of gas, measured at normal temperature and pressure. But, since the temperature of the explosion is about 6,100 deg. F., the initial force of the explosion is that corresponding to $420(460 + 6{,}100) \div (460 + 32) = 5{,}600$ expansions, which represents a pressure at sea level of $(14.7 \times 5{,}600) \div 2{,}000 =$ say 40 tons per sq.in.

In practice, this theoretical pressure is only approximated, owing to the loss of heat by conduction and the action not being wholly instantaneous. It is estimated that nitroglycerine is capable of 16,000 expansions, which would correspond to an initial pressure, at sea level, of $(14.7 \times 16{,}000) \div 2{,}000 =$ say 120 tons per sq.in.

The theoretical velocity developed by a pressure of 40 tons per sq.in., assuming the density of the air is 0.0766 lb. per cu.ft., is

$$\frac{1}{5{,}280}\sqrt{\frac{64.32 \times 40 \times 2{,}000 \times 144}{0.0766}} = 18\tfrac{3}{4} \text{ mi. per sec.}$$

In the case of nitroglycerine, the theoretical velocity due to an initial pressure of 120 tons per sq.in. is $32\frac{1}{4}$ mi. per sec. While these velocities are almost inconceivable, it must be remembered that they are only initial velocities and, in practice, are found to be unattainable. They are, however, suggestive of the terribly destructive forces set free in the explosion of these substances.

Effect of Working an Underlying Seam

We have a proposition confronting us with which we must deal in the near future and which leads us to seek the advice of *Coal Age* and its practical readers. It relates to the mining of the coal in a 42-in. seam lying 250 ft. below another seam that we expect to work later. The question is what would be the result of taking out the coal more or less completely in the lower seam, using either the longwall method of working or the room-and-pillar system, robbing the pillars as the rooms are finished. We are anxious to learn if this would damage or injure the later working of the coal in the upper seam. We believe this question will prove of interest to others who are facing similar propositions.

Betsy Layne, Ky. SUPERINTENDENT.

Extracting the coal from a $3\frac{1}{2}$-in. seam lying 250 ft. below another coal bed will not ordinarily affect the successful working of the upper seam, providing the intervening strata is a fairly solid formation and does not contain too much water.

From the meager information given in this inquiry it is not possible to state definitely what effect the working of the lower seam will have on the upper coal, or to what extent it will damage the later working of that seam. Everything will depend on the character of the intervening strata. If the formation is a succession of shale, sandstone and limerock, such as is common to the coal measures, and the work in the lower seam is properly conducted there need be no undue disturbance that would interfere with the safe working of the upper seam, unless a large amount of water is contained in the strata.

We would advise the use of the longwall method of working this $3\frac{1}{2}$-ft. seam, chiefly because it is low coal lying at a considerable depth below the surface. Moreover, the employment of the longwall method of mining, where proper care is taken in the building of the packwalls will afford a more uniform settlement of the overlying strata and entail less risk and damage to the coal lying above. The longwall method also affords a more complete extraction of the coal, better ventilation of the working face and requires less timber than when the room-and-pillar system of mining is employed.

It is of prime importance, in order to insure the successful working of the upper seam at a later time, to provide for an ample shaft pillar in the lower seam. The side or diameter of this shaft pillar should not be less than 250 ft. for a depth of 500 ft. below the surface. It will be interesting to learn the experience of readers in regard to the working of these seams.

Examination Questions

Answered by

James T. Beard

Mine Foremen's Examination Held at Carbondale, Pa., May 4, 5, 1920

(*Selected Questions*)

Ques.—What is the minimum quantity of air per minute, for each person, in order to comply with the mine law?

Ans.—The Anthracite Mine Law requires a minimum air volume of 200 cu.ft. per min. for each person employed in the mine and "as much more as the circumstances may require." (Art. 10, Sec. 3.)

Ques.—How are the ventilating currents to be distributed so as to comply with the mine law?

Ans.—The air currents must be conducted to the face of every working place throughout the entire mine in sufficient quantity to dilute, render harmless and sweep away the smoke and gases, so that all working places and traveling roads shall be safe and fit for work and the passage of men going to and from their work. (Art. 10, Sec. 4.)

Ques.—How are the abandoned parts of a mine in operation to be kept so as to conform with the mine law?

Ans.—The law requires that all worked-out or abandoned parts of a mine in operation, so far as possible, shall be kept free from dangerous bodies of gas or water. Where this is not practicable the mine inspector must be immediately notified to that effect. (Art. 10, Sec. 5.)

Ques.—(a) What are the conditions in a mine that call for a division of districts? (b) How shall each district conform with the mine law in matters pertaining to ventilation?

Ans.—(a) When more than seventy-five persons are employed in a mine, it must be divided into two or more separate districts, in respect to ventilation.

(b) Each district of the mine must be ventilated by a separate air split and the circulation must be so arranged that not more than seventy-five persons shall be employed, at the same time, on the same current or split of air. (Art. 10, Sec. 6.)

Ques.—What governs the size or area of airways through which air currents are passing and where persons are employed?

Ans.—All air passageways shall be of such an area as to permit of the flow of not less than 200 cu.ft. of air per minute for each person employed on that current, and the velocity of the air where the mine is generating explosive gas shall not exceed 450 lineal feet per minute in any opening where gauze safety lamps are used, except in the main inlet or outlet airways. (Art. 10, Sec. 7.) This means that where a mine is generating explosive gas and gauze safety lamps are in use, there must be provided in each passageway or opening, four feet of sectional area for every nine persons or fraction thereof employed on that current or split.

Ques.—There are two dams in a mine, each 6 ft. high and 12 ft. wide, filled with water. If the water is backed 1,000 ft. in one and 400 ft. in the other, what is the total pressure in pounds, against each dam?

Ans.—The size of each of these dams being the same, the area of pressure of the water is the same in each case; namely, $6 \times 12 = 72$ sq.ft. Assuming the seam is level, the pressure head in each case is one-half the height of the dam, or 3 ft., which makes the total pressure on each dam, $3 \times 72 \times 62.5 = 13{,}500$ lb.

Ques.—What is meant by the term pressure, as used in ventilation?

Ans.—This term relates to the pressure producing circulation in the mine. While the ventilating pressure is created by the action of a fan or other means of producing circulation, the amount of pressure produced is determined by the frictional resistance of the mine or airway. Except for this resistance, there would be no pressure.

Ques.—How would you find the total ventilating pressure in an airway in a mine?

Ans.—Multiply the reading of the water gage, expressed in inches, by 5.2, which gives the unit pressure (lb. per sq.ft.). This unit pressure multiplied by the sectional area of the fan drift, in square feet, will give the total ventilating pressure, in pounds.

Knowing the amount of rubbing surface in a mine or airway and the velocity of the air current, the total ventilating pressure may be calculated by multiplying the unit resistance, or coefficient of friction, by the rubbing surface, in square feet, and that product by the square of the velocity in feet per minute. The final product is the total pressure producing the circulation, in pounds.

Ques.—If ten horsepower is required to produce an air current of 20,000 cu.ft. per min., what power will be necessary to produce a current of 40,000 cu.ft. per min.?

Ans.—To double the quantity of air in circulation, in the same mine or airway, will require eight times the power, which is in this case, $8 \times 10 = 80$ hp. The power producing the circulation in a given mine or airway varies as the cube of the quantity of air circulated.

Ques.—State the conditions under which you would remove the workmen from the mine so as to conform with the mine law.

Ans.—The law provides (Art. 12, Rule 8) that if noxious gases are found to prevail in a mine or portion of the mine, or any cause of danger exists, every precaution must be taken to insure the safety of the workers. The law further requires that all persons be withdrawn from the mine or any portion of the mine that is found to be dangerous, except those persons employed to remove the danger. The men must not be allowed to re-enter until the mine or section has been examined and pronounced safe for work.

Shifts Blame to Trade Commission for Failure to Bring Lawsuits

REPLYING to the charge of the Federal Trade Commission that the National Coal Association failed to carry out its agreement to bring a number of test suits against the commission to test its legal authority (*Coal Age*, Aug. 26, page 463), it is stated by the general counsel for the association that pursuant to the arrangement with the counsel for the commission the attorneys of the National Coal Association drafted several complete bills of complaint on behalf of different operators presenting different situations, but counsel for the commission flatly refused to serve any of these companies other than the Maynard Coal Co. with the default notice which was considered a necessary condition precedent to the filing of the suits. Counsel for the commission stated that he would not serve any such default notices until the Maynard case was finally disposed of, in spite of the agreement with the representatives of the commission that the Maynard case and the decision therein was to be treated as a test case.

Attorneys for the association have repeatedly asked counsel for the commission as to whether the commission desired to appeal from Justice Bailey's decision and have offered to co-operate to expedite the hearing of any such appeal. Counsel for the commission have finally advised attorneys of the association that they had not intended to appeal from the injunction granted by Judge Bailey and have intimated that there is no haste as to taking further steps in the case, the responsibility for not having cases other than the Maynard case now pending and the responsibility for the failure to appeal from Justice Bailey's decision so that an early and final decision might be rendered by the upper courts resting solely with counsel for the commission.

Coal and Coke Shipments for First Four Months, 1919 and 1920

Classes and Railroads	Originating on Line 1919	Originating on Line 1920	Received from Connections 1919	Received from Connections 1920	Total 1919	Total 1920
For Revenue Only	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons	Short Tons
Anthracite						
Baltimore & Ohio	.....	.....	464,474	663,435	464,474	663,435
Buffalo, Rochester & Pittsburgh	.....	.....	50,241	60,682	50,241	60,682
Buffalo & Susquehanna	.....	.....	592	3,293	592	3,293
Chesapeake & Ohio	1,108	6,108	8,304	5,868	9,412	11,976
Erie	2,221,809	2,261,315	695,703	899,270	2,917,512	3,160,585
Huntingdon & Broad Top Mountain	.....	.....	97	101	97	101
Pittsburgh & Lake Erie	.....	.....	48	333	48	333
Pittsburg, Shawmut & Northern	.....	.....	3,592	7,639	3,592	7,639
Virginian	475	1,183	48	150	723	1,333
Western Maryland	.....	.....	95,704	108,123	95,704	108,123
Totals	2,223,392	2,268,606	1,319,003	1,748,894	3,542,395	4,017,500
Bituminous						
Baltimore & Ohio	8,358,793	11,628,509	2,456,149	4,167,119	10,814,942	15,795,628
Buffalo, Rochester & Pittsburgh	1,951,259	2,701,966	124,041	62,452	2,075,300	2,764,418
Buffalo & Susquehanna	389,663	609,637	914	.....	390,577	609,637
Chesapeake & Ohio	5,909,729	8,178,195	712,302	811,834	6,622,031	8,990,029
Erie	95,767	142,283	2,294,798	3,464,381	2,390,565	3,606,664
Huntingdon & Broad Top Mountain	216,428	289,990	4,080	17,714	220,508	307,704
New York Central (Buffalo and East)	1,869,412	2,831,209	.....	.....	1,869,412	2,831,209
Norfolk & Western	5,766,425	6,321,565	779,950	974,923	6,546,375	7,296,488
Pittsburgh & Lake Erie	1,596,878	1,693,306	1,924,626	2,093,029	3,521,504	3,786,335
Pittsburg & Shawmut	569,885	883,429	.....	.....	569,885	883,429
Pittsburgh, Shawmut & Northern	135,847	257,815	85,487	121,685	221,334	379,500
Virginian	1,102,534	1,943,844	154,411	207,163	1,256,945	2,151,007
Western Maryland	872,913	1,626,750	2,035,993	2,561,829	2,908,906	4,188,579
Totals	28,835,533	39,108,498	10,572,751	14,482,129	39,408,284	53,590,627
For Company Fuel						
Anthracite						
Baltimore & Ohio	.....	.....	1,447	1,445	1,447	1,445
Buffalo, Rochester & Pittsburgh	.....	.....	.....	1,509	.....	1,509
Erie	50,309	74,877	.....	4,134	50,309	78,011
Totals	50,309	74,877	1,447	6,088	51,756	80,965
Bituminous						
Baltimore & Ohio	1,855,478	1,458,554	108,445	91,461	1,963,923	1,550,015
Buffalo, Rochester & Pittsburgh	215,139	270,004	773	244	215,912	270,248
Buffalo & Susquehanna	22,795	40,125	.....	.....	22,795	40,125
Chesapeake & Ohio	581,863	785,645	.....	.....	581,863	785,645
Erie	396,779	482,327	663,634	789,354	1,060,413	1,280,681
Huntingdon & Broad Top Mountain	12,187	5,079	46	3,268	12,233	8,347
New York Central (Buffalo and East)	580,190	550,117	.....	.....	580,190	550,117
Norfolk & Western	873,968	837,637	146,226	204,404	1,020,194	1,042,041
Pittsburgh & Lake Erie	90,549	100,433	102,573	111,789	193,122	212,222
Pittsburg & Shawmut	12,407	15,550	.....	.....	12,407	15,550
Pittsburg, Shawmut & Northern	12,342	21,259	.....	.....	12,342	21,259
Virginian	96,296	155,467	1,486	4,107	97,782	159,574
Western Maryland	99,832	207,934	98,613	19,697	198,445	227,631
Totals	4,849,825	4,930,131	1,121,796	1,233,324	5,971,621	6,163,455
Coke for Revenue and Fuel						
Baltimore & Ohio	416,308	555,252	176,686	292,703	592,994	847,955
Buffalo, Rochester & Pittsburgh	89,326	69,838	103,421	135,897	192,747	205,735
Buffalo & Susquehanna	108,318	124,701	75	39	108,393	124,740
Chesapeake & Ohio	181,781	187,189	21,388	46,919	203,169	234,108
Erie	43,075	72,633	98,486	173,688	141,561	246,321
Huntingdon & Broad Top Mountain	27,747	23,305	3,045	17,798	30,792	41,103
Norfolk & Western	483,539	380,365	49,325	72,717	532,864	453,082
Pittsburgh & Lake Erie	167,084	131,171	1,733,051	1,501,632	1,900,135	1,632,803
Virginian	.....	.....	90	.....	90	.....
Western Maryland	15,694	17,962	152,382	75,663	168,076	93,625
Totals	1,532,872	1,562,416	2,337,949	2,317,056	3,870,821	3,879,472

NOTE—No report was received from the Pennsylvania Railroad.

Wagon Mines vs. Tipple Operations

Attracted by Inflated Prices, Large Operators Hold That They Are Transitory and Irresponsible, Intensifying Car Shortage and Upsetting Wage Rates — Small Owners Now Plan Organizations to Pool Coal and Fight for Rights

BY WILLIAM A. WHITE*

MUCH attention has been directed of late to the operations of so-called country bank or wagon coal mines. Operators of established tipple mines have been waging a bitter fight against their smaller brethren. Railroads and the large coal concerns assert that much of the present car shortage and the attendant high prices of coal may be traced to the wagon mine operators and especially those who have entered the industry in large numbers during the last few months. As a result several orders have been promulgated tending to restrict the activities of the "team tracker," whose "practice of loading coal into open-top cars," the Interstate Commerce Commission order states, "results in undue delay and wasteful use of equipment, and aggravates the existing shortage of such equipment and the congestion of traffic."

The Public Service Commission of Pennsylvania recently ordered that the Pennsylvania R.R. should not furnish open-top cars to wagon mines except where mines load on private tracks and over tipple or other arrangement permitting coal to be dumped into cars. Cars so furnished must be counted against such operations under the same uniform mine-rate and car-distribution rules applying to established tipple mines. Following this the Interstate Commerce Commission issued a like order, but specified that open-top equipment shall not be furnished wagon mines until other mines and those with private track and equipped for dumping coal have been fully supplied with cars. The order is effective immediately and remains in force until April 1, 1921. With the existing car shortage this practically means that nothing but box cars will be available for the wagon miner.

A Typical Wagon Mine

A 250-ton bin stores output on days when no cars are available. Truck dump (background) provides facility for dumping direct into trucks or wagons.

Another View of Same Mine

Mine cars may be unloaded at storage bin or run around to truck dump in the background.

In order to get a first-hand view of the situation I made a trip to various sections of the central Pennsylvania district and was able to secure considerable data covering both sides of the argument.

In the mining region east of Pittsburgh it is asserted that there are upward of 2,000 of these small operations. On one division alone 337 out of 512 mine operations served by the Pennsylvania R.R. are of the wagon mine type. It has been stated that there are some 7,500 mining operations in the country, more than 3,000 of which are of the "team tracker" variety. Hundreds of these small operators have opened up in the last few months, availing themselves of the high coal prices.

Railroads contend that the scattered locations and ever-increasing number of these greatly hampered and

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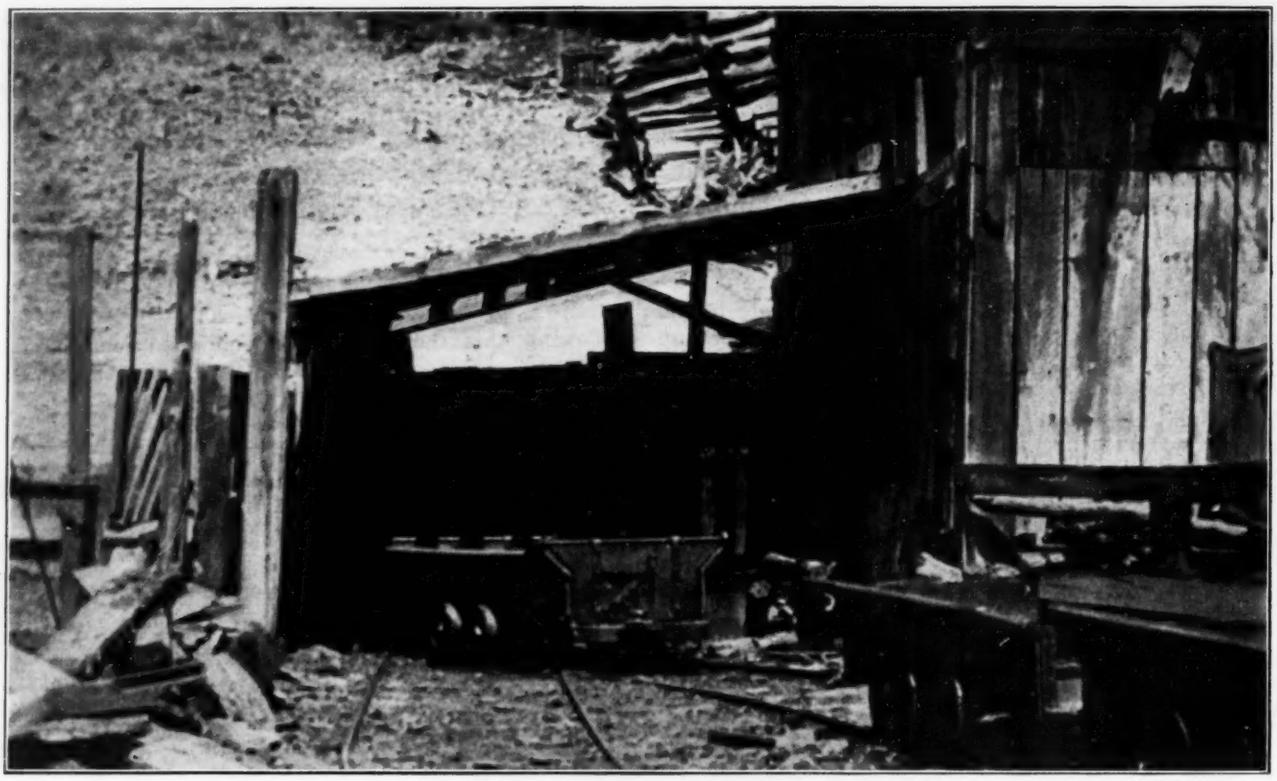


WAGON MINE DRIFT-MOUTH ENTRY
Typical conditions at entrance of mine are here seen. This operation is located within city limits and is surrounded by residences.

slowed up their service, both in the distribution of empties and the switching out of loads from public tracks, which with the slow loading of cars contributed unnecessarily to the existing car shortage. Better movement of cars is now predicted, as established operators assert that they are in position to load promptly all the cars railroads can furnish.

Large coal concerns deplore the tactics of these "mushroom" operations, contending that, as their name implies, they are only temporary affairs, attracted by the high coal market. They acquired parcels of land by lease and the payment of a small royalty. Putting in a railroad siding was too expensive a proposition, so they hauled to the cars in wagons. Wage scales meant nothing to them; they were willing to pay any price for labor, and labor, as usual, went to the highest bidder. They did not operate under mine-rating and car-distribution rules, and therefore obtained more than their fair quota of cars. By reason of their slow methods cars were frequently delayed in loading.

An operator in one section visited stated that the average per-ton pay of wagon miners in his locality was 80c. over the wage scale. He could not and would not meet this, consequently his best men left for "snow-bird" operations. Not only was the cream of his labor diverted elsewhere but this also caused considerable discontent among his remaining men. All of the above conditions tended to reduce the output of the established mines and to further complicate the already complex wage question.

Being of a purely temporary nature, the top of the spot market held the only attraction for them. They were "getting it while the getting was good" and usually auctioned their coal to the highest bidder. Contracts were not considered. Legitimate operators usually contract from 50 to 80 per cent of their normal output at figures which this year were about $5 per ton under the present high market. The large number of cars required to serve wagon mines necessarily reduced the number of those available for loading of contract coal and at the same time added to the tonnage of high-priced fuel being thrown on the market. Operation of wagon mines therefore tended to increase the ultimate cost of coal to the public. Since the issuance of the Interstate Commerce Commission order limiting the activities of the wagon mine, however, the average price for coal shipped has dropped in the section visited from $12 to $8, f.o.b. mines.

Unusual Profits Attract Outsiders

Attracted by the amazing profits being made, not only the old miner fell victim to the lure of a team-track operation. Hundreds outside of the industry forsook their usual work for this more lucrative occupation. Inefficient mining methods naturally followed, the one idea being to scratch the coal out in the largest possible volume and in the quickest manner. As a result an ever increasing tonnage of an inferior grade was being shipped at top market figures. The real operator, with his investment running into many thousands of dollars, was forced to load his superior coal to cover legitimate contract obligations at prices far below the current market. Obviously such a condition was unfair, both to the public and to the responsible operator.

About all the investment necessary for a "snow-bird" operation, after securing the lease, was a few hundred dollars for supplies, rail, live-stock, and a couple of cars, etc. Teaming to the cars was usually contracted for on a per-ton basis. Operating expenses were amply met and in many cases anticipated by coal sales. Such was the demand for coal that cash payment was exacted when a car was loaded. It was not at all uncommon for

brokers in their frantic quest for free coal to "advance" the temporary producer sufficient cash to enable him to start his operation, this in consideration for the sale of the first few cars mined.

Profits in the magic wagon mine industry were enormous. In one section visited maximum cost of coal on cars was $4 per ton while the market had reached $14 and higher. This same and in some instances even a greater differential existed throughout the entire country. Overnight new fortunes were being made and by people who for the most part were poor less than a year ago.

The hills in the mining sections are pockmarked with these small openings, sometimes within a stone's throw of one another. As may be imagined, there were wild rushes for coal lands and considerable activity reigned in the acquisition, sale and exchange of such property, the valuation doubling and trebling with each turnover. I recall the case of one opening which could not be sold last April for $700. Less than two months ago, however, a price of $5,000 was asked for a half interest in the lease and equipment of this property.

A practical cessation of loading has followed the Interstate Commerce Commission ruling. In some instances box cars are being loaded but these are very scarce and most of the workings are running no coal at all. A few are supplying local house and steam demands but at prices far from their former levels. Railroads are receiving numerous applications for installation of sidings, but one official declared it would be a matter of months before the applications could be filled.

Wagon mine operators throughout the country are organizing to fight the recent orders, claiming the enforcement will involve them in considerable loss and will constitute a virtual confiscation of their property without due process of law or just compensation, contrary to the Federal Constitution.

It appears that a majority of the members of these new organizations are of the permanent type, have owned or leased their coal lands for a number of years, investing in some cases as high as $25,000. They resent their classification with the "mushroom" type of wagon mine and are determined to obtain their rights to continued operation on the same basis as the smaller tipple mines.

Owing to their location it is impossible for wagon mines to be served with individual railroad sidings, therefore the purchase of sites for common loading tracks, and the erection of chutes and storage bins, where several members may pool their coal, is contemplated. These mines can operate on about the same basis as the smaller tipple mines and make contracts on a legitimate market. Under these circumstances they are unquestionably entitled to the same privilege of continued operation.

Indiana's Coal Regulatory Law Declared Valid

Judge Baker Rules That State Can Lay Its Hand on Mining Industry—Coal Company's Petition Dismissed Without Prejudice

AFTER an all-day hearing in Indianapolis, before three federal judges, in the case of the American Coal Mining Co. of Bicknell against the Indiana Coal Commission, asking an injunction against the operation of the new Indiana Coal Commission Law, the court upheld the power of the State of Indiana to regulate the coal industry within its boundaries. Judges Francis E. Baker, Ferdinand A. Geiger and E. A. Evans heard the petition. The commission was recently established by the special legislature to regulate coal prices within the state. The coal company's petition was dismissed without prejudice that the record might show only that the state may regulate such an industry under its police powers. Charles Martindale, chief counsel for the coal company, said his client has not decided on an appeal.

The opinion denying the injunction was given by Judge Baker, the other judges concurring. Sitting as District Judge, he upheld the motion of the defense to dismiss the petition which was before the District Court alone. The decision sets a precedent regarding the police power of the state. Not since 1696 in England has there been regulation of the coal industry by the state except in war time.

After reviewing several of the minor points presented Judge Baker said: "There is involved, however, in this application for a preliminary injunction the one fundational question of the right of the state to touch at all the coal mining business. If no such right exists in the state, then the temporary injunction should be issued at once, and it would go as a matter of course that a final injunction should thereupon issue, because there would be no question of fact to controvert and a final decree in favor of the plaintiff would at once be entered, if there is a total lack of power in the state to create this commission, through which to undertake the control of mining.

"The legislature is an absolutely free agent except insofar as its principals, the people, have expressed a limitation in the state constitution. For the purpose of this federal inquiry it may be taken that the state legislature had the full power of the people of the State of Indiana and the people of Indiana stood as absolute sovereigns over the person and properties within the limits of the state — that means the power of the people to determine upon measures for public welfare, which may be expressed by the legislature, without any limitation that is not imposed upon the state by the Federal Constitution. The state under its police power can lay its hand upon the coal-mining industry."

In his opinion Judge Baker indicated that the administration of the act may be such that emergencies can arise under which the court might have the right to interfere, but that such emergencies were at this time purely conjectural and hypothetical and until a time when such an order might be issued by the commission were not a basis for action.

New York's Public Utility Coal Stocks Show Gains

THE public utility corporations of Greater New York had 343,860 tons of bituminous coal on hand on Aug. 31, according to recent report of the Public Service Commission. This is a gain of 34,000 tons over the amount on hand the previous week. In previous years the corporations have had on hand at least 400,000 tons by Sept. 1, and twice that amount a month later.

Good Business Without Panics Predicted By U. S. Chamber of Commerce

STRONG belief in a gradual and natural readjustment of business conditions without financial disorder or any sudden economic calamity is expressed by the Committee on Statistics and Standards of the Chamber of Commerce of the United States, in its semi-annual bulletin on crop and general business conditions.

Tight money, unrest of labor, the loosened bonds in some phases of social life, the Russo-Polish war, and the high cost of necessities are enumerated as disturbing business factors, but in the opinion of the committee there is no need to become panicky over any of these matters. The committee finds a widespread feeling that business probably will continue good for the remainder of the year.

West Virginia Sales Agent Arraigned with Operators as Profiteer

IN ADDITION to the coal concerns in southern West Virginia against whom warrants have been issued by the U. S. Attorney for the Southern District of West Virginia, the Lake & Export Coal Corporation, with general offices at Huntington, has been served with a warrant issued by U. S. Commissioner J. P. Douglas upon complaint of Special Agent M. D. Campbell of the Department of Justice, the warrant charging profiteering in the sale of coal. The president of the company is E. J. Payne. T. A. Dietz is the vice-president and S. J. Hyman is the secretary and treasurer, at least as named in the warrant. All the other southern West Virginia companies against whom warrants have been issued are operating companies, the Lake & Export company being the only coal sales concern to be served with papers.

West Virginia Will Disarm Mingo Men

AN INFANTRY battalion of the United States army with regulation riot equipment, including machine guns and one-pound cannon, five motor trucks, one ambulance and several motorcycles, arrived at Williamson on Aug. 29 to patrol the strike zone from Kermit east to Delorme, a distance of about 50 miles. Col. Samuel Burkhardt, of Fort Sherman, Chillicothe, Ohio, is in command. There are between 400 and 500 men.

Judge James Damron expects soon to try the twenty-six men indicted for murder in connection with the killing of seven private detectives. Fearing the effect of the presence of many armed men, he dismissed forty-two deputy sheriffs on Sept. 6, replacing them by twenty professional and business men of Williamson. Seventy citizens who had been permitted to carry firearms were also disarmed. All men entering the court were searched to see if they carried weapons. By these means it is hoped that it will be possible to avoid a declaration of martial law.

Estimated Production of Coal in the Principal Countries of the World During the Years 1913 to 1919, Inclusive

BECAUSE of the confusion introduced by the war into the official statistics of many countries, estimates of world production of coal for years since 1913 must be regarded as tentative and subject to revision. The following table, prepared by F. G. Tryon, of the U. S. Geological Survey, summarizes information received by the Geological Survey up to Aug. 15, 1920. Lignite and brown coal are included. The metric ton (2,206 lb.) will be most easily remembered by American readers as practically equivalent to the gross ton.

PRODUCTION OF COAL IN THE PRINCIPAL COUNTRIES OF THE WORLD

(In Metric Tons of 2,206 Pounds)

	1913	1914	1915	1916	1917	1918	1919
United States	517,057,000	465,860,000	482,275,000	535,325,000	590,939,000	615,260,000	493,745,000 (*a*)
Great Britain	292,041,000	269,926,000	257,268,000	260,488,000	252,486,000	231,402,000	232,574,000 (*a*)
Germany	278,986,000	245,482,000	235,082,000 (*a*)	252,847,000 (*a*)	262,311,000 (*a*)	261,108,000 (*a*)	210,300,000 (*ab*)
Austria-Hungary	53,698,000	47,939,000	46,600,000 (*a*)	49,702,000 (*a*)	47,064,000 (*a*)	40,090,000 (*a*)	(*a*) (*b*) (*c*)
France	40,844,000	27,528,000	19,533,000	21,310,000	28,915,000	26,259,000	22,477,000
Russia (European)	33,814,000	33,198,000	34,999,000 (*a*)	34,630,000 (*a*)	(*c*)	(*c*)	(*a*) (*b*) (*c*)
Belgium	22,842,000	16,714,000	14,177,000	16,863,000	14,920,000	13,822,000	18,546,000
Japan (*d*)	21,416,000	22,339,000	20,591,000	33,010,000	26,514,000	28,203,000	30,832,000 (*a*)
India	16,468,000	16,728,000	17,378,000	17,531,000	18,505,000	21,055,000	22,109,000
China	13,779,000	9,272,000 (*a*)	18,000,000 (*a*)	21,700,000 (*a*)	(*c*)	(*c*)	(*c*)
Canada	13,619,000	12,372,000	12,036,000	13,139,000	12,743,000	13,588,000	12,325,000
Australia (*b*)	12,617,000	12,644,000	11,598,000	9,969,000	10,361,000	11,125,000	10,697,000 (*a*)
Union of South Africa	8,079,000	7,831,000	7,676,000	9,288,000	9,933,000	9,457,000	9,979,000 (*a*)
Spain	4,292,000	4,424,000	4,687,000	5,589,000	6,005,000	7,239,000	(*c*)
Asiatic Russia	2,160,000	2,102,000	2,247,000 (*a*)	(*c*)	(*c*)	(*c*)	(*c*)
New Zealand	1,918,000	2,312,000	2,244,000	2,293,000	2,102,000	2,067,000	(*c*)
Holland	1,873,000	1,929,000	2,262,000	2,656,000	3,050,000	4,883,000	5,357,000
Chile	1,283,000	1,087,000	1,172,000	1,418,000	1,539,999	(*c*)	(*c*)
Mexico	891,000 (*f*)	(*c*)	(*c*)	(*c*)	(*c*)	460,000 (*a*)	(*c*)
Turkey	842,000	661,000	496,000	243,000	368,000	355,000	561,000 (*b*)
Italy	710,000	781,000	953,000	1,301,000	1,682,000	2,500,000 (*a*)	(*c*)
Indo-China	509,000	620,000	644,000	685,000	654,000	636,000	(*c*)
Dutch East Indies	411,000	568,000	619,000	749,000	832,000	(*c*)	(*c*)
Sweden	364,000	367,000	412,000	416,000	443,000	404,000	(*c*)
Bulgaria	358,000	421,000	534,000	640,000	761,000	673,000	570,000 (*a*)
Serbia	311,000	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	104,000 (*a*)
Peru	274,000	284,000	291,000	319,000	354,000	346,000	(*c*)
Roumania	241,000	273,000	309,000	(*c*)	(*c*)	(*c*)	(*c*)
Rhodesia	216,000	317,000	372,000	446,000	498,000	446,000	(*c*)
Other countries (*g*)	429,000	472,000	560,000	706,000	841,000	1,000,000	1,000,000
Totals	1,342,333,000	1,205,291,000	1,195,785,000	1,296,192,000	1,344,710,000	1,330,610,000	1,163,341,000

(*a*) Based on incomplete or unofficial data, subject to revision. (*b*) Production from fields included inside former boundaries before changed by peace treaties. (*c*) Estimates included in total (*d*) Includes Twiwan (Formosa) and Karafuto (Japanese Sakhalin). (*e*) Includes New South Wales, Queensland, Tasmania, Victoria, and Western Australia. (*f*) Production in 1912. (*g*) Includes the Following countries: Greece, 170 tons (1913); Federated Malay States, 103,000 tons (1916); Greenland, 1,800 tons (1916); Portugal 23,000 tons (1913); Tunis 32,000 (1917); Venezuela, 6,000 tons (1913); Algeria 7,000 tons (1918); Spitzbergen 62,000 tons (1918); Switzerland, 146,000 tons (1918); Brazil 15,000 tons (1912); British Borneo 89,000 tons (1912); Korea 110,000 tons (1912); Philippines 3,000 tons (1912); and Colombia 36,000 tons (estimated).

Performance of a Consulting Economist Turned Financial Expert*

As an Authority on Capital and Income Mr. Lauck Produces as Extraordinary Results as in Other Expert Rôles—Statement of Cost and Sales Agents' Margin Grossly at Variance with Facts

IT WAS doubtless a sore disappointment to W. Jett Lauck, consulting economist for the United Mine Workers of America, that he was not permitted to place in evidence before the Anthracite Coal Commission the half dozen or so exhibits in which he proposed to show the excess profits exacted by the anthracite companies from the public, and to prove them guilty of other high crimes and misdemeanors. It is just as well for Mr. Lauck's reputation as a consulting economist that he should have suffered this disappointment, for had his exhibits been admitted and the operators' representatives been given an opportunity to reply to and refute them, he would have been even more thoroughly discredited than he was in his rôle of expert on irregularity of employment, wages and the cost of living, earnings of anthracite miners as compared with workers in other industries, the budget system as applied to household expenses of wage earners, and occupational hazards.

In protesting against the admission of this extraneous material S. D. Warriner, spokesman for the operators, fully realized that the stand taken by him would invite the criticism of a hostile pross and that no rule of ethics would deter Mr. Lauck from seeking all the notoriety possible by the publication of a large part of the excluded material. Again the newspapers were kind in giving him a large amount of free advertising. The press, however, carefully avoided any mention of Mr. Warriner's statement that the anthracite operators were ready and willing to submit to any proper investigation of their business. In fact, such investigation had been made by committees of both houses of Congress, by the Federal Trade Commission, by the U. S. Fuel Administration (this being particularly complete and exhaustive), and by the U. S. Bureau of Labor, and the reports of these investigations, some of them—notably those of the Bureau of Labor—made from actual examinations of the books of the companies by official representatives of the Government, were a matter of public record and available to any one interested. As the material was extraneous to the matter in controversy Mr. Warriner contended that the commission was without jurisdiction "to hear, to determine and to enforce," and he was unequivocally sustained in his position by the commission. Mr. Lauck, however, immediately rushed into print.

It is difficult to select from such a mass of misstatement and mendacity the portions to which it is worth while to reply. The one which seemed to gain the largest degree of publicity was given out as containing "figures showing all the factors entering into the retail price of a ton of anthracite coal, and giving the increases in those factors for 1920 as compared with 1914, made public by W. Jett Lauck, consulting economist for the United Mine Workers of America, appearing at the wage arbitration proceedings before the Anthracite Coal Commission at Scranton. . . . It is claimed that they are the only statistics that have ever been compiled on the subject that may be regarded as authoritative." The only claim of this character that has been made was by the publicity department of Mr. Lauck's Bureau of Applied Economics, and the only authority for the figures given was W. Jett Lauck.

The first item in the table which follows the above self-laudatory quotation purports to show the cost of anthracite at the mine, divided into labor, supplies and general expenses. In this table Mr. Lauck states that the labor cost of anthracite in 1920 is $2.71 a ton. There is absolutely no warrant for any such statement and Mr. Lauck knows it. The Federal Trade Commission's report published in June, 1919, showed that in November and December, 1918, following the advance in wages in November, the labor cost of producing a ton of anthracite was $3.31, and there has been no reduction in the rates of wages paid the contract miners or the day labor in the anthracite region since that date. As all of the deductions made in that and other tables contained are dependent upon this falsehood the "authoritativeness" of the statement may well be questioned.

Some of the curious, myself among the number, would also be glad if Mr. Lauck would give his authority for the statement that the average margin of the sales agent had increased over 670 per cent from 1914 to 1920. The question, of course, will not be pressed if his delicate sense of honor prevents divulging his authority as in the confidential character of 252 made in a public address by a Government official. In this statement, however, with $2.71 erroneously given as the labor cost, Mr. Lauck himself shows that while the total operating cost had increased 74.1 per cent, the operators' margin had increased only 62.5 per cent. If the actual labor cost had been used in the compilation it is safe to say that the operators' margin would have been shown to be less in 1920 than in was in 1914.

One of the remarkable features of the statement "made public by W. Jett Lauck, consulting economist for the United Mine Workers of America," is the uniformity of the sales agent's margin, be he in New York, Boston or Washington. It is given as $1.19 in 1914 and $3.29 in 1920 in each case, though in the original table the sales agents' margin was 21c. in 1914 and $1.62 in 1920.

Another batch of "news" which Mr. Lauck succeeded in getting somewhat widely distributed related to the earnings of a few of the companies whose annual reports are published. Here again this versatile consulting economist branches out as an expert on finance and capitalization.

*This is the third of a series of articles on the consulting economist in wage controversies. The first and second articles of the series appeared in *Coal Age*, Sept. 2 and 9, respectively.

One of the comparisons he is pleased to make is with reference to the capitalization of the Philadelphia & Reading Coal & Iron Co. and the Lehigh Coal & Navigation Co., and he says:

> For a complete understanding of the extent of profiteering in the anthracite industry one other fact in the financial side of the companies should be mentioned. The Philadelphia & Reading Coal & Iron Co. with $8,000,000 capital stock produced nearly three times as much coal each year as did the Lehigh Coal & Navigation Co. with three times as much capital stock—$29,173,950 being the capitalization of the latter company. This clearly indicates that the Lehigh Company is either grossly overcapitalized or that it is holding an immense area of anthracite coal land out of use for future exploitation. In either case the actual reported rate of return upon investment is no indication of the actual amount which the public is paying for the real capital actually being employed. In the first case profits are being realized upon a heavily watered capitalization. In the other case the public is being charged for the use of property which is being reserved for the making of future profits.

Mr. Lauck in this statement shows himself as either grossly ignorant or wilfully mendacious. It is hard to believe he is the former. It is common knowledge that in the reorganization of the Reading interests the Philadelphia & Reading Coal & Iron Co. was capitalized at a purely nominal figure of $8,000,000 and continued business with an acknowledged debt to the Reading Company of $70,500,000. Besides this it has a bonded indebtedness of $930,000. Mr. Lauck surely knew this, and he also must have known that the Philadelphia & Reading Coal & Iron Co. has not earned or paid the full interest on this debt. It certainly did not earn it in 1915, when its total net income from operations was $60,572, though Mr. Lauck asserts that it earned 0.8 of 1 per cent on its capital stock.

The total capitalization of $8,000,000 stock and $71,430,000 debt is not excessive, for, according to R. V. Norris, one of the Engineers Committee of the U. S. Fuel Administration, the amount of capital required properly to develop and operate an anthracite property is from $7.50 to $8 per ton of annual output, and as the yearly production of the Philadelphia & Reading Coal & Iron Co. is in excess of 11,000,000 tons an actual investment of more than $80,000,000 is represented. According to Mr. Lauck's own statement the total net income of the company in the last seven years has been $14,137,715, an average of a little over $2,000,000 a year, or 2½ per cent on $80,000,000. Yet Mr. Lauck has the effrontery to state that from the prewar period to the war period "the profit realized increased nearly 500 per cent" and that "this finds expression in an increase in the profit per ton of 435 per cent." A statement more unregardful of the truth was never given public utterance, for, as shown above, the company has not in the last seven years earned or paid the interest on its debt, let alone accumulate a profit.

Equally misleading is the consulting economist's statement "that the Lehigh [Coal & Navigation] Company is either grossly overcapitalized or that it is holding an immense area of anthracite coal land out of use for future exploitation." This company is one hundred years old, having been organized as the Lehigh Navigation & Coal Co. in 1820. Its stock is owned almost entirely in Philadelphia and largely by Quaker interests. Its properties in the Lehigh district of the anthracite region, while extensive, do not lend themselves to low-cost methods of production, nor are they among the really high-cost properties. They may be considered as about midway between what are known as high- and low-cost operations. The properties, however, have the disadvantage of producing relatively low percentages of the prepared sizes so that the product does not yield as high a realization as the more favorably located properties in the Wyoming district, and conservative and skillful management has been at all times necessary in order to yield a profit on the investment.

The Lehigh Coal & Navigation Co. has never been a big dividend payer, but what earnings it has made above its established dividend rate in the century of its existence have been wisely invested, though one investment, the Lehigh Canal, has outlived its usefulness and is now rather a liability than an asset. It constructed and is the owner of the railroad from Easton to Wilkes-Barre, now leased to and operated by the Central Railroad of New Jersey and it financed and is the chief owner of the Lehigh & New England R.R., which it promoted to obtain a more satisfactory outlet for its product into New England. The capital stock of the company outstanding in 1919 was $29,173,950; its funded debt is $26,083,000. Its total production in 1919 was 4,250,000 tons, which, according to the formula announced by Mr. Norris, requires an investment of something over $30,000,000. The company's statement of capital invested in its coal-mining properties for the same year was $31,719,042. Its investment in other properties, securities, government bonds, etc., is about $45,000,000.

If there is anything in these figures to justify the statement of the consulting economist that the Lehigh Coal & Navigation Co. is grossly over-capitalized, it does not appear on the record. Its issue of capital stock is $2,500,000 less than the value of its coal property and improvements. The net income of the Lehigh Coal & Navigation Co. from its coal mining properties was $1,271,812, from which a proportion of the Federal and general taxes, administrative expenses, and interest, has to be paid. Its net revenue from other investments was $3,768,697, or almost exactly three times its net revenue from its coal-mining operations. The total net revenue for the year from all sources, less loss on the canal operations, amounted to $4,910,236, from which administrative expenses, general taxes, interest, etc., amounting to $2,035,353, were deducted, leaving a net income carried to profit and loss of $2,874,883. The proportion of the general expenses that might be allocated to the mining operations cannot be accurately determined, but if only one-fourth were so charged the net income carried to profit and loss from the coal-mining operations would be about $762,000, or less than 3 per cent on the capital stock. The total assets of the company are reported at $85,200,000.

The other statements put forward by Mr. Lauck in this and the other "excluded exhibits"are equally as misleading and as little worthy of credence as those to which attention has been called in this article. It does not appear, however, that anything is to be gained by entering specific denial to every detail. It is believed that enough has been said to show that the Anthracite Commission was justified not only in excluding these but in discrediting by its awards the entire testimony introduced by Mr. Lauck on behalf of the mine workers, for which it is understood they paid him a sum of money approximating $40,000. Whatever else they may be, the mine workers are not "cheap skates."

News from the Capital

By Paul Wooton

To Prosecute Anthracite Profiteers

AT THE Department of Justice Sept. 11 it was stated that attempts to profiteer in anthracite coal would be prosecuted. The department is watching anthracite prices and if attempts be made to unduly raise prices because of present conditions prosecutions will be entered. It was also stated that the action of the department in prosecuting resales of bituminous coal is having effect, tending to lower prices. The department has cases pending in which charges are made that the resales have been merely to increase prices and escape taxes and charges of profiteering.

Nearly 500 Indicted as Profiteers in Coal —More Warrants Expected

IN ITS new drive against coal profiteers the Department of Justice has announced that indictments have been brought against nearly five hundred bituminous coal dealers throughout the United States. A marked increase in the number of indictments is expected during the next thirty days, it was stated at the department.

F. G. Tryon Explains Scope of Survey Statistics on Wagon Mines

REPLYING to an inquiry by Justice J. F. McGee, who represents in Washington coal interests of the Northwest, F. G. Tryon, the geologist in charge of coal and coke statistics for the Geological Survey, says:

"The records of the Geological Survey are not kept in such a way as to show the precise number of wagon mines, defining that term as a mine without railroad switch.

"There are, however, available accurate statistics concerning the output of bituminous coal by size of mines. In the annual report on coal in 1917, part A, production, pages 947-948, it is shown that the total number of mines producing less than 10,000 tons a year in 1917 was 5,888, or 55.3 per cent of all the mines in the country. The production of this group amounted to 10,449,000 short tons, or 1.9 per cent of the entire production of bituminous coal. This was an average per mine per year of 1,775 tons.

"The Geological Survey attempts to collect annual reports of products from every mine, no matter how small. The statistics from the country banks are never complete because of the great number of these little producers. In 1918, the year of maximum production, reports were obtained from 2,719 country banks, practically all of which were without tipples. Their total contribution to the production of the country was 1,108,000 short tons, an average of 406 tons per year.

"The Geological Survey also recognizes a class of 'local commercial mines' which in ordinary times are restricted to a local business only and which produce less than 3,000 tons a year and employ less than ten men. In 1918 reports were received from 550 of these local commercial mines.

"To summarize, the records of the Geological Survey show that there are at least 3,300 country banks and local commercial mines producing less than 3,000 tons a year; that there are about 5,900 mines producing less than 10,000 tons per year; and that the total production of the latter group is less than 2 per cent of the entire output for the country."

Coal Pools Ask Extension of Credit for Demurrage Charges

THE Tidewater Coal Exchange and the Sewalls Point Coal Exchange, operating pools for transshipment of coal through New York, Philadelphia, Baltimore and Norfolk, have requested the Interstate Commerce Commission to grant a hearing concerning extension of credit in connection with demurrage charges assessed under the average agreement. Hearing was set for Sept. 24 in Washington.

Seeks Transfer of Locomotives to Accelerate Movement of Coal

WHILE cars are moving freely from the anthracite roads onto the bituminous carriers, the movement of coal has not been accelerated as much as should be the case, due in some instances to the lack of motive power. As a result the National Coal Association is trying to procure the transfer of locomotives as well as cars. The Transportation Act gives the Interstate Commerce Commission the same power over locomotives that it has over cars, but there is some reluctance to exercise this authority in the present instance.

The owners of locomotives are very much opposed to allowing them to pass out of their possession. Their argument is that a borrowed locomotive receives treatment comparable with that accorded the horse hired from a livery stable. Another argument advanced is that the anthracite strike is likely to come to an abrupt end and the anthracite carriers would be in a position to furnish cars and move the coal promptly. They fear delays in getting both cars and engines back.

Commerce Commission Declines to Modify Open-Top Order for Wagon Mines

AFTER listening to a full presentation of the case of the wagon-mine operators, the Interstate Commerce Commission appeared to be of the opinion that sufficient reasons had not been advanced to justify any change in its order which denies open-top cars to such operators as do not have overhead loading devices. At the start of the hearing the wagon-mine operators were asked to formulate a proposal which would cover the situation and be helpful to them. This request was not complied with.

The main contention on the part of the wagon-mine operators was that the denying of open-top cars to them constitutes an unjust discrimination as between coal producers. Some of the wagon-mine operators went so far as to contend that the delay to cars at their particular mines is no greater than at tipple mines. Practically every witness admitted that he operated only when prices were high.

E. S. Ballard, of counsel for the National Coal Association, asked that the order remain unchanged, in view of the continuing emergency which requires the most efficient possible use of open-top cars. Representatives of the railroads were unanimous in their request that the order be continued. They were joined in this position by the representatives of the Northwest, who held that the order is essential to the public welfare.

The Labor Situation

Edited by
R. Dawson Hall

Connellsville Daymen Get Wage Advance

ON SATURDAY, Sept. 4, the H. C. Frick Coke Co. posted notices at all its plants in the Connellsville region notifying its employees of a wage advance, effective Sept. 1, of $1.50 a day of eight hours to all inside daymen and $1 per day of nine hours to common outside labor in the coke yard and to other daymen in proportion. No change is made in the mining rate or in the pay for other piece work.

This will increase the rate at slope and drift mines of drivers, rope riders, trackmen, blasters, timbermen, motormen and snappers from $6 to $7.50 per day, assistant track and timbermen from $5.25 to $6.75 per day, and common inside labor from $5.05 to $6.55 per day. At shaft mines the rate is 5c. per day higher. Common cokeyard labor is increased from $4.40 to $5.40 per day. All the independent coal and coke plants in the coke region will, as is customary, immediately follow the scale of the Frick company.

Alabama Mine Strike Has Extended Since It Received Union Authorization

LARGE extension of the Alabama coal-mine strike is alleged by the union as a result of the complete authorization of the shutdown by international headquarters, T. R. Kennamer, president of the Alabama district, asserting that 12,000 men out of 26,000 men are out.

Four coal-mining companies and the coal-mining department of a steel corporation have been shut down as the result of the order for a strike to start at midnight Tuesday, Sept. 7.

The issue as defined by the mine workers is that the Alabama mine owners ignored the report of the Bituminous Coal Commission. This the operators deny. The facts, however, are not really in dispute. The commission raised the daymen 20 per cent, which meant to the mine workers of the Central Competitive Region an increase of $1, namely from $5 to $6. Scales, however, rule lower in Alabama and 20 per cent in that state meant less than a dollar a day. The union holds to the dollar advances, the operators to the percentage increase.

"Under the Garfield agreement," says the Alabama branch of the union, "drivers and other classes of inside workmen were getting $3.44 a day, and the highest wage under the scale for inside day labor was $3.84 per day. Tipple men and other classes of outside labor received $3 per day.

"If the operators had given the full award of the commission, drivers would have received $4.44 where they are now receiving from $4 to $4.15 per day; inside day labor should have received $4.84 instead of $4.60 and tipple men $4 per day instead of $3.60."

The operators contend that they were not bound in any way by the commission's award, as they did not in any manner pledge themselves to accept it, nor when requested to do so did they present their testimony, as did the mine workers of Alabama. The hearing was set for Feb. 11, 1920, but the operators did not appear. On the other hand the mine workers assert that the President gave the commission jurisdiction and that the commissioners recognized that fact by recommending that the operators of Alabama meet the representatives of the mine workers and compose their differences.

Feeling that the "representatives" might be held to mean the union, which the operators would not recognize in any way, the employers granted the wage increases awarded, placing their own construction on the award. The union called on the operators to meet with them April 15 of this year, but without avail.

Now the operators and mine workers have agreed to submit all matters in dispute to the new state commission appointed by Governor Kilby, the operators, however, saying that "We will not, directly or indirectly, recognize or deal with the United Mine Workers of America now or hereafter." They cite the fact that the Bituminous Coal Commission did not recommend such recognition.

What Alabama Mine Workers Are Demanding

The demands of the mine workers are in brief: Collective bargaining and recognition of the union as in other districts, uniformity of tonnage and yardage rates for pick and machine mining throughout the state, readjustments of day-labor prices to accord with those obtaining in other states (a somewhat ambiguous demand), abolition of contract and subcontract system for tonnage basis of payment, right to put checkweighmen on tipples (now provided by law), and abolition of payment by measurement or by car.

On Sept. 7 in a coal-strike dispute at Gintown, Sam Lynn, a non-union miner, was shot and killed and several others were injured. J. R. Allison, a union miner, is being held, charged with the murder of Lynn; and Henry Brewer, another miner, is held on the charge of intent to kill.

On the same day the Bessemer Coal, Iron & Land Co. entered suit for $50,000 damages against J. R. Kennamer, J. L. Clemo, W. L. Harrison and other union leaders, charging them with a conspiracy to force the plaintiff to operate a "closed shop" and causing the plaintiff's employees to abandon their work.

It should be added that the mine workers of Alabama have not received any increase corresponding to the advance to daymen recently conceded in the Central Competitive Region and some other districts.

About fifty of the mines of Alabama have already signed up with the union. They employ about 5,000 men. None of these men is included in the call of the union of Sept. 1.

Anthracite Strike Still Unbroken

Asked to Reconvene the Joint Scale Committee for the Purpose of Revising the Report of the Anthracite Commission, President Wilson Refuses

CONDITIONS in the anthracite region are not on the mend. The declaration of the President, that the verdict of the Anthracite Coal Commission must stand, disposes of the hope that a return to work would be followed by a resubmission of the case either to the commission or to the scale committee of operators and mine workers. Thus it removes the reward which the latter hoped to secure by a resumption. Yet at the same time it fills the men with apprehension and so may cause them to return to work without any prospect of reward.

The mine workers know that with the commission and Mr. Wilson against them, the operators will feel sure of their ground. In fact, the operators could hardly dare to make concessions even if they so desired except at their own expense, which is unthinkable with the prices now current. If they did so venture, a conspiracy to raise prices would be assuredly alleged, and the operators would bitterly rue the day. Not only the commission, the President and the operators are siding against the mine workers; the public also will now be in opposition. Hence victory cannot be won by them. This will be borne in slowly upon their consciousness. When it is, the strike is lost. It will not last long.

Many Men in the Northern Field Return to Work

Early last week it seemed as if the men would return to work. On Saturday, Sunday and Monday, Sept. 4, 5 and 6, respectively, the following collieries in District 1—the "insurgent" area—voted to end their "vacation": Lance No. 11 and Nottingham, at Plymouth; Pettebone, at Dorranceton; Warrior Run and Heidelberg No. 1, at Avoca; Heidelberg Nos. 2 and 5 and Cunningham, all at Wilkes-Barre; Mineral Spring, at Parsons; Pancoast, at Throop; Woodward at Edwardsville and Raubs at Luzerne.

Confidence was expressed that the insurgent convention of Tuesday would end the trouble by voting to go back to work. When it met there were bitter recriminations. Edward McCrone of Oliphant, one of the "vacation committee," accused George Evans, also of the committee, of abetting the return of the members of his local union to work, intimating that Evans himself had not been entirely idle. Enoch Williams, the chairman of the committee, berated those who had voted for a "vacation" and who nevertheless had returned to work.

Union Leader Berates Backsliders

He charged the men of District 1 to help maintain the strike they had started. It was a disgrace to them, he declared, to give up battling when Districts 7 and 9, which were not insurgent, were still continuing the struggle unwearied. Even in those districts, however, there were not wanting signs of resumption. On Sept. 8 the Derringer colliery of the Lehigh Valley Coal Co. renewed operation and the Cranberry colliery of the Lehigh Coal & Navigation Co. resumed after a half day's "vacation" on Tuesday, only to close down again soon after.

It must be conceded that with these exceptions the two districts in the south (Nos. 7 and 9) did not give favorable indications. Today they are entirely idle. The leaders seem quite willing to see the vacation continue. It is said that their private admonitions belie entirely their public professions. They trust that having publicly declared against a strike the declaration will protect the union. The "vacation," however, they feel will procure for the mine workers what they want, so why take steps to end it?

On Sept. 10 of 229 fair-sized collieries 66 were working and 163 idle, as shown in the following table:

MINES WORKING AND IDLE SEPT. 10

Name of Company	Number	Working	Idle
Lower Coal Field:			
Philadelphia Reading Coal and Iron Co.	34	..	34
Buck Ridge Coal Mining Co.	1	..	1
W. R. M. McTurk Coal Co.	1	..	1
Pine Hill Coal Co.	1	..	1
Susquehanna Collieries Co.	9	..	9
East Bear Ridge Colliery Co.	1	..	1
Lehigh Valley Coal Co.	6	..	6
Dodson Coal Co.	2	..	2
Oak Hill Coal Co.	1	..	1
Buck Run Coal Co.	1	..	1
Port Carbon Coal Co.	1	..	1
The St. Clair Coal Co.	1	..	1
Maryd Coal Co.	1	..	1
Lehigh Coal & Navigation Co.	8	..	8
Alliance Coal Mining Co.	1	..	1
Mill Creek Coal Co.	1	..	1
Wolf Creek Coal Co.	1	..	1
Trevorton Coal Co.	1	..	1
Mt. Hope Coal Co.	1	..	1
Darkwater Coal Co.	1	..	1
The Enterprise Coal Co.	1	..	1
Madeira-Hill Coal Co.	4	..	4
Laurel Coal Mining Co.	1	..	1
Greenough Red Ash Coal Co.	1	..	1
Cambridge Coal Co.	1	..	1
White & Co.	1	..	1
East Lehigh Colliery Co.	1	..	1
Ellsworth Coal Mining Co.	1	..	1
	85	0	85

Besides this there are seventeen other small collieries not working.

Hazleton Field:			
Lehigh Valley Coal Co.	7	..	7
A. S. Van Wickle Est. (Coleraine)	1	1	..
Evans Colliery Co.	1	..	1
G. B. Marle Co.	4	..	4
C. M. Dodson & Co.	1	..	1
J. S. Wentz & Co.	3	..	3
Madeira-Hill Coal Co.	2	..	2
Wolf Colliery Co.	1	..	1
Upper Lehigh Coal Co.	1	..	1
East Point Coal Co.	2	..	2
Lehigh & Wilkes-Barre Coal Co.	1	..	1
Pardee Bros. & Co.	1	..	1
Cranberry Creek Coal Co.	1	..	1
Hardwood Coal Co.	1	..	1
M. S. Kemmerer & Co.	1	..	1
A. S. Van Wickle Est.	1	..	1
Beaver Valley Coal Co.	1	..	1
T. R. Riese Coal Co.	1	..	1
	31	1	30
Upper Field:			
Lehigh Valley Coal Co.	13	5	8
Susquehanna Coal Co.	3	3	..
Lehigh & Wiles-Barre Coal Co.	9	9	..
Delaware, Lackawanna & Western R.R., Coal Dept.	18	6	12
Hudson Coal Co.	14	10	4
Pennsylvania Coal Co.	14	3	11
Haddock Mining Co.	1	1	..
George F. Lee Coal Co.	1	1	..
Temple Coal Co.	6	3	3
Scranton Coal Co.	10	5	5
Price-Pancoast Coal Co.	1	1	..
Leggitts Creek Anthracite Co.	1	..	1
Mt. Jessup Coal Co., Ltd.	2	2	..
Archbold Coal Co.	1	1	..
Humbert Coal Co.	1	1	..
Von Storch Collieries Co.	1	..	1
Connell Anthracite Mining Co.	1	1	..
West End Coal Co.	1	1	..
Madeira-Hill Coal Co.	1	1	..
Wilkes-Barre Colliery Co.	1	1	..
Peoples Coal Co.	1	..	1
Suffolk Coal Co.	1	1	..
Jermyn & Co.	1	..	1
Kingston Coal Co.	4	4	..
East Boston Coal Co.	1	1	..
Carbondale Coal Mining Co.	1	1	..
Pittston Coal Mining Co.	1	..	1
West Nanticoke Coal Co.	1	1	..
Alden Coal Co.	1	1	..
Phoenix Coal Co.	1	1	..
	113	65	48

Besides this there are thirty-two collieries in the upper field from which no reports were obtainable, but twenty four of which were probably working.

Seventy-Three Teams Compete at Denver Mine Meet

Winner of First-Aid Contest Is Scarbro, W. Va., and of the Mine-Rescue Event, Leisenring Rescue Station — Lignite Demonstration Mine Fails to Explode in Manner Scheduled

DENVER and the coal operators of the Rocky Mountain region were most hospitable to the Fifth National First-Aid Meet conducted on Sept. 9, 10 and 11 by the U. S. Bureau of Mines. Many who attended the meet at Pittsburgh last year were enthusiastic in declaring that in interest and attendance the gathering at Denver was the best that has ever been held. Certainly the fact that seventy-three teams, the majority from east of the Mississippi, were in attendance shows that interest in safety first has not been permitted to languish in the coal mines of the country. Although the first-aid and mine-rescue contests were the chief centers of interest, the sessions of the Rocky Mountain Coal Mining Institute, the Colorado Metal Mining Association, the Colorado Chapter of the American Mining Congress and the Colorado Society of Engineers were all well attended and fruitful of such results as the exchange of ideas and the renewal of acquaintanceships, for which conventions are noted.

Among local institutes that of the Rocky Mountain region has always been known for sustained interest and practical work. F. W. Whiteside, secretary of the institute, is to be commended for the excellent program and the participants for the instructive papers read. President B. J. Matteson opened the sessions at the State Capitol building on Thursday morning with a welcoming address and introduced James Dalrymple, coal-mine inspector for Colorado, who talked on the subject of ventilation in a way to induce confidence in the ability and technique of his inspection staff, to which he gave much credit for aid in the preparation of his paper. John McNeil had written a paper on the subject of safety in the mining of coal that was read by his son. In this paper stress was laid on the excessive use of powder in the United States as compared with Great Britain. It was pointed out in the discussion that followed that although a greater quantity of powder may be used per shot here than abroad, the discrepancy is not so great when the tonnage also is considered.

Public Must Get Safety Facts and Spirit

In the meeting on Friday the speakers were Robert Snedden and Carl A. Allen, state inspectors of Wyoming and Utah respectively, and Director F. G. Cottrell of the Bureau of Mines. Mr. Allen pointed out the absolute necessity of educating the public as well as the coal operator and the miners in essential safety measures, for no law or regulation can be effective until public sentiment fully supports it. In Utah last year 48 per cent of the accidents were attributed to the carelessness of the man hurt, 12 per cent to lack of proper safeguards by the company and for the remaining 40 per cent it was not possible to place the responsibility with perfect assurance.

Dr. Cottrell made a most earnest plea to the coal men for support in the work of the Bureau of Mines. He called attention to the fact that 60 per cent of the appropriations of the bureau are now spent either directly or indirectly in safety work and stressed the need of more extensive engineering investigations into mining problems. He conceives his work to be to promote conservation and better mining methods through technologic studies and asked the coal-mining industry to help by suggestion and criticism.

Mine-rescue contests with breathing apparatus were held on Thursday with eighteen teams competing. Each team was required to pass inspection of apparatus and to make two trips through a gas-filled gallery and effect the rescue of men overcome by gas. The men were fully equipped with oxygen breathing helmets and their work was pronounced by experts to have measured up to the highest standards. To put all the teams through the tests required from two in the afternoon until nine in the evening, but all stayed on the field until the work was completed. Because of the unsettled condition of Denver following the strike of city tramway employees, the military authorities did not permit the outdoor contest to be held within the city limits, and although excellent grounds were found to the east of Denver the distance was so great that the spectators were not so numerous as at the first-aid contests held within the city on the following days. To Mr. Forbes and Mr. Harrington of the Bureau of Mines, who perfected the arrangements under difficulties, great credit is due for the smooth working of the scheduled program.

Lignite Dust Fails to Explode at Test

A feature of the open-air meet was the attempt to explode a gallery filled with Northern Colorado lignite dust. Until the official report has been made on the test it will not be known just what the test showed. The unofficial version is that the lignite dust was inert to the flame not because lignite is not subject to dust explosions but because the gallery was not properly prepared for the demonstration and the powder charge was not large enough to produce the result. It was stated that none should conclude from this test that lignite dust will not ignite, as samples of the same material have been exploded at Pittsburgh under more normal conditions.

Rescue by aëroplane was demonstrated with the cooperation of the army. A plane was sent from Fort Sill, Ark., to participate in the exhibition. A model slope entrance on the field was seen to explode and a telephonic message was sent for help from the nearby aviation field. A plane carrying medical officers soon arrived, first aid was given the miner brought from the smoke-filled interior of the mine and he would have been carried by air to the base hospital had not the plane suffered a punctured tire. F. J. Bailey, assistant director of the Bureau of Mines, who is an enthusiast on the subject of the use of aëroplanes in rescue work, staged this stunt.

It was not to be expected that there would be as many teams competing at Denver as at Pittsburgh, for a Colorado meeting involves great expense for the contesting teams and the companies that send them. There were over 100 teams at Pittsburgh and seventy-three at Denver, which is considered a remarkable record for a

point so remote from the geographical center of coal production. The exhibition was held in the stadium of the Union Stockyards, an ideal place, where sixteen teams were able to be in action at a time. Hundreds of Denver people as well as visitors attended the meetings.

Operators and Miners Lend Financial Aid

The success of the meet was made possible by the financial support of the Colorado-New Mexico Coal Operators Association, the United Mine Workers, and many mining companies and manufacturers of mining equipment and machinery. Director Cottrell and Assistant Director Bailey of the Bureau of Mines were enthusiastic over the success of the meet and the reception extended by Denver and the Western mining men. Although it may be some years before another meet as far west as Denver may be attempted it is recognized that in every respect the results of this effort were beyond expectations.

At the closing meeting of the institute on Saturday morning, Sept. 11, David Griffiths, formerly State Coal-Mine Inspector of the State of Colorado, read a paper on the relation of coal to the World War. Attorney-General Case of Colorado gave an inspirational address on Americanism. James W. Paul, of the U. S. Bureau of Mines, discussed the failure of the demonstration of the explosibility of lignite dust in the exhibition mine on Sept. 9. He said that its partial failure to explode under the conditions obtaining in the experiment did not mean that lignite mines would be found exempt from the possibility of dust explosions.

R. Z. Virgin, of the Carnegie Institute of Technology at Pittsburgh, Pa., explained the methods used by that educational body in the teaching of mine foremen. Dan Harrington, of the U. S. Bureau of Mines, read an excellent paper on the "Duties, Trials and Difficulties and Co-operation of Officials in Connection with the Fire Boss."

Butte and Huntington Contend for Meet

The first-aid contests were concluded on schedule time in the afternoon, a large number of persons attending the event. In the evening a notable gathering of mining men assembled in the Denver Auditorium to witness the award of prizes, the speakers being Governor Shoup; J. T. Burns, assistant secretary of the American Mining Congress; W. W. Curds, a coal operator of Colorado Springs; Samuel Pascoe, district president in Kentucky, of the United Mine Workers, and F. G. Cottrell, Director of the U. S. Bureau of Mines, who announced the awards of the Jospeh A. Holmes Safety Association and the victors in the first-aid and mine-rescue contests.

A request from Butte, Mont., that the next meet be held in that city was extended by J. L. Boardman of the Anaconda Copper Mining Co., while R. M. Lambie, the chief inspector of West Virginia, spoke in favor of Huntington, W. Va. Eight teams tied for the first place in the artificial-respiration and resuscitation event. The award was given to the Knox County Operators' Association team of Bicknell, Ind.

The *Coal Age* silver cup for first place in the mine-rescue event fell to the H. C. Frick Coke Co.'s Rescue Station at Leisenring, Pa.; S. Cominsky captain. The second prize fell to the Victor-American Fuel Co., Madge mine, Col.; captain, Robert Halbert. This team also was awarded first place for the combined rating in mine-rescue and first-aid work and was further honored as first in the State of Colorado. Third place was won by the Homestake Mining Co.'s team of Lead, S. D.; captain, Ed English.

The first Illinois team was that of the State Mine-Rescue Station at Benton; Alex. Weir, captain. Among the Wyoming contestants the leading team was that of the Union Pacific Coal Co., Rock Springs; Lige Daniels, captain. From the States of Indiana, New Mexico, Pennsylvania, South Dakota,Utah, Washington and West Virginia, only a single team entered the mine-rescue contests. They were all awarded recognition as being first in their respective states.

The *Coal Age* silver cup for primacy in the first-aid contests fell to a team of the New River Co., Scarbro, W. Va.; Louis Roncaglione, captain; percentage 99.1. This team also was awarded prize for first place among coal-mining teams only. It further got a prize as the leading team in first-aid work in the State of West Virginia. This team has won honors before, being second in the state contest last summer.

Second place fell to No. 1 team of the St. Louis, Rocky Mountain & Pacific Coal Co., of Raton, N. M.; James L. Bisch, captain. To it fell the prize for being first in first-aid of all teams entered from the Rocky Mountain States. It received honors and a prize for leadership in first aid in its own state. The De Bardleben Coal Co.'s team, from Sipsey, Ala., took third place. L. Shores captained this team. It also received the honor of being first in its own state.

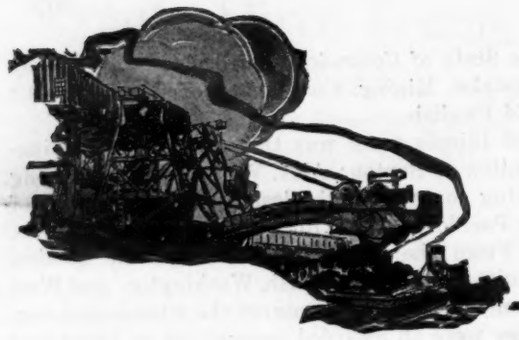
State honors fell to the Berwind mine, of the Colorado Fuel & Iron Co.; D. Aitkin, captain. Eugene Fultz, captain of the Illinois State Mine Rescue Station at Herrin, having piloted his men successfully, received for that team the honor of being first from Illinois. Indiana's leading team was that of the J. K. Dering Coal Co., Mine No. 6, Clinton, Ind.; Matthew Kerr, captain. Iowa's leadership fell to the Smoky Hollow team of Hiteman; Alf. Hjort being captain.

The Haileyola Coal Co.'s team of Haileyola, Okla., William Ogilvie, captain, took first place for Oklahoma contestants. From Pennsylvania, the best first-aid team was that of the H. C. Frick Coke Co., Standard mine, Mount Pleasant; C. J. Spence, captain. Utah's first honors fell to the Spring Canyon's First-Aid Society, Standardville, Utah; James W. Bingham, captain. Virginia's champion was the team of the Clinchfield Coal Co., of Dante; W. E. Wolfe, captain. The leading honors for Wyoming were captured by the Owl Creek Coal Co.'s team, Kirby; with William Lloyd, captain.

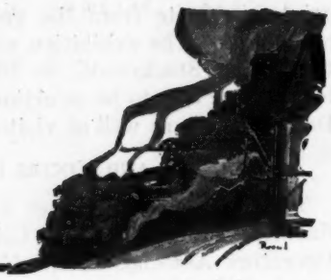
Other states having but one participating team in the first-aid events were Arizona, Arkansas, Montana and Washington. In all eight silver cups were awarded to the teams occupying first places. Every contestant received a watch fob.

Rail Movement to New England Recedes

MOVEMENT of bituminous coal to New England by rail fell off sharply during the week ended Sept. 4. Cars forwarded through the five Hudson gateways of Harlem River, Maybrook, Albany, Rotterdam and Mechanicsville as reported to the Geological Survey by the American Railroad Association numbered 4,456. This was a decrease of 1,336 cars, or 23 per cent, when compared with the preceding week, and was 280 cars below the movement during the corresponding week of 1919.



Production and the Market



Weekly Review

All Production Declines—Car Placements Are Better—Prices Recede—Southern and Midwest Regions Experience Labor Troubles—Continuance of Priorities Is Protested—Anthracite Miners Showing Disposition to Return

BITUMINOUS production declined during the week ending Sept. 4, with an output estimated by the Geological Survey of 11,051,000 net tons. This is a decrease of 339,000 tons, or 3 per cent, when compared with the preceding week. The decrease centered in the northern Appalachian region.

Week's anthracite output fell to 1,084,000 net tons, occasioned by the miners' "vacation." Production of beehive coke decreased with an output of 395,000 tons.

Bituminous loadings on Labor Day amounted to about a fifth of a normal day's loading. This usual Labor Day slump will hold down the production figure for the week ending Sept. 11. Late reports from mining sections point to a marked improvement in car placement as well as labor conditions. Exceptions to this are the local strikes in Midwest region and Alabama.

Price recession continues in districts favored with better car supply. In the South and Midwest the market has advanced or at best remained firm.

Consumers in the areas adversely affected by the continuance of Lake and New England priorities are apprehensive of a shortage unless this coal is diverted from priority channels.

The release of 25,000 cars now assigned to the coal trade by Service Order 7 is requested by representatives of steel manufacturers, who assert that they are being handicapped by lack of transportation equipment.

New England rail movement fell off sharply, a total of 4,456 cars being reported through the Hudson gateways for the week of Sept. 4. Lake dumpings are in excellent shape, 884,989 tons being the figure for the week ending Sept. 11.

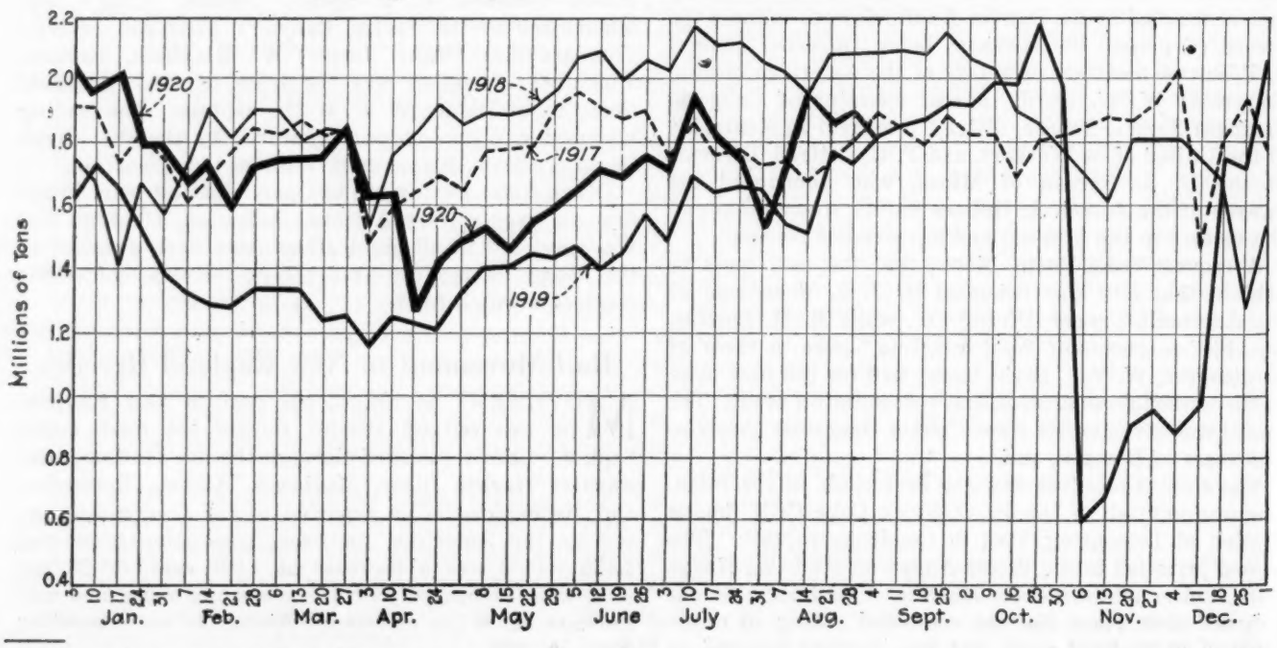
President Wilson's refusal to reopen the anthracite wage parley has evidently been accepted by labor. Developments indicate the return of more miners to work. The men are preparing for a long and intensive campaign to obtain higher pay.

Lake Coal Dumped Season to Sept. 11

(NET TONS)

	Cargo	Fuel	Total
1919.....	16,331,581	752,707	17,084,288
1920.....	12,545,059	745,329	13,290,388

Average Daily Production of Bituminous Coal*



*From weekly report of Geological Survey.

Reports From the Market Centers

New England

BOSTON

Demand Continues Light — All-Rail Shipments Are Good — Contract Deliveries Increase — Better Inquiry for Water Coal — Anthracite Outlook Causes Anxiety.

Bituminous—There have been almost no developments of any significance here in the past week, although certain features of the market have been emphasized the last few days. The trade is beginning to feel the effect of so much curtailment in some of the industries and it is clear that for a month or two there will be only a dull market.

There is no active demand for spot coal. Consumers who were steadily purchasing to replace coal not forthcoming on contract and to secure a seasonable reserve are now out of the market, content to take what may come forward on early spring commitments. Most distributors report only meagre sales and are wondering what the course of prices will be the next few weeks. Apparently there is an entire absence of coal coming on speculation, either by water or rail, and this shows that for the immediate future no very considerbale spurt in manufacturing is looked for.

Practically all east-bound embargoes against coal are now cancelled. Congestion at the Hudson River gateways is clearing up gradually and receipts are being maintained well up to the August average. A few weeks more of this will dull the edge of current demand and probably cause widespread cancellations of old purchases for delivery in September and October. When Service Order 9 expires on Sept. 21 there is certain to be an acceleration of deliveries on contract. Large consumers, however, are now free to admit they have comfortable stocks in the aggregate; their anxiety now is to arrange for more even distribution to their several plants. This sounds very little like a panic market in the fall.

Water coal is in somewhat better demand, but not to the extent of furnishing any broad market for coal on Order 11. The five-day suspension expired Sept. 7, but the tonnage dumped the past few days is nowhere near up to the quota, nor would New England absorb the coal if it were.

At Hampton Roads despatch on shipments continues excellent. The leading agencies are well up on contract deliveries and several of the rehandling factors have free coal. Current requirements of many small plants are being met through these channels.

Congestion continues at Curtis Bay, due to the difficulty of moving high-volatiles shipped from the mines under Order 11. Liberal use of the embargo process is expected to correct this.

Current prices on bituminous at wholesale are slightly firmer this week, chiefly owing to fewer traffic restrictions:

	Clearfields	Cambrias and Somersets
F.o.b. mines, net tons	$8.50@ 9.75	$9.00@10.00
F.o.b. Philadelphia, gross tons	12.15@13.55	12.75@13.85
F.o.b. New York, gross tons	12.60@14.00	13.15@14.50

Anthracite—The "vacation" which at most collieries has now lasted 10 days is causing some apprehension. Retailers here have been on a hand-to-mouth basis all season and any prolonged suspension in mining is bound to have serious results.

Tidewater

PHILADELPHIA

Anthracite Is at a Standstill — Steam Activity Confined to Storage Rice and Barley—Bituminous Prices Are Firm—Contract Shipments Improve — British Trouble Increases Export Demand.

Anthracite—Very little coal has been received during the week past, due to continuance of trouble at the mines. Independent operators have been able to ship some coal, but it has had no effect on the general situation. The dealers generally have delivered all of the prepared sizes they had on hand and are now working on pea.

The public as yet takes but a passing interest in the strike. There is a strong tendency on the part of the consumer to complain of prices. Rumors of more price investigations naturally emanate from such agitation. It cannot be denied that the retailers are getting at least a fair profit for their coal. However it is really difficult to establish any figures, as dealers are not advertising prices, having no coal to offer.

Steam trade activity is confined to rice and barley, the only two sizes available in any quantity for the market. A few of the larger companies have a fair tonnage of barley in storage and they are loading this rapidly at their fixed price of $2.25 per gross ton at mines. Rice coal in limited quantity is $3. Independent buckwheat is $5@$6, rice around $4 and barley $2.50.

The river coal producers are offering mostly rice and barley. This coal is close to $3, making a delivered price of $5.45.

Tide movement of steam coals, with the exception of barley, has almost ceased. The accumulation has been almost cleaned up. Recent prices prevailing at Tide for company coal were: buckwheat $7.65, rice $5.55, boiler $5.15 and barley $4.80.

Bituminous—As is to be expected, the anthracite trouble has increased the demand. Price range has hung close to $10. Better coals are still almost unobtainable and on such as Pool 9 quotations are rarely heard. Most of the steam trading is confined to Pools 10 and 11. Pool 10 prices range $9.50@$10, while Pool 11 is $8.75@$9.25.

The Fairmont gas coals are selling $9.25@$9.75, the mines. Many concerns want screened coal but so far very little tonnage is being screened. The Pennsylvania gas coals, particularly the low sulphur grades, are being sold $11@$12 at mines.

Concerns with contracts are getting good shipments and continue to accumulate fair stocks. Very few selling concerns are soliciting business and 90 per cent of the spot trading is direct with shipping offices.

Consumers are not stocking spot coal and complain of the high cost, particularly with the increased freight rates. The iron trade continues to take heavy tonnages of coal.

Assigned car orders are causing much trouble for the producer, as consignees are not taking the full amount allotted. A market is easily found for such coal, but the confusion is causing the shipper more than ever to hope for the time when he does not have to conduct his business upon orders from those not directly concerned with the production of coal.

This week has shown an increase of inquiries for foreign deliveries, due to the unsettled condition in the British coal industry. Nevertheless, only limited permits are being granted for export shipments. Should the anthracite dispute be settled it is thought the export ban will be lifted, as there is a general feeling that there would then be more than enough bituminous to cover domestic demand.

Coke prices remain firm with foundry $18.50@$19 per net ton at ovens for Connellsville, and furnace around $18.

BALTIMORE

Strong Protest Made Against Continuance of Order 11 — Car Supply Fine and Prices May Decline Further — Hard Coal Receipts Almost Wiped Out.

Bituminous—Following action of officials of the New York Wholesale Association in protesting to the Interstate Commerce Commission against continuance of Order 11, the subject was taken up by the Maryland Jobbers' Association last week. The Government contends that the recent 5-day suspension of the order was due to a condition at Hampton Roads, and not to general congestion. Also that there was no need for further suspension of the order, but that the movement would soon create a supply condition in New England and cause the end of priority. No action has been taken on the subject by the local wholesale trade as yet.

Meanwhile, business men are being stirred by the fact that New England industries are being supplied with coal at prices about $2 per ton f.o.b. mines below what others must pay for the same grade.

On line trade Baltimore & Ohio R.R. coals are selling about as follows, f.o.b. mines: Pools 9 and 71, $9@$9.50; Pool 10, $8@$8.50; Pool 11, $6.50@$7.50 and Pool 18, $6@6.50. Gas coals jumped 50c.@75c. in the past week. Run of mine is around $9, and a little ¾-in. is offered at $10@$10.50. The Pennsylvania line coals are stiffer, and sell $10 @$10.50.

Car supply on the B. & O. and Western Maryland is fine. Since Labor Day there has been a splendid run. Coal men say that such a supply will bring decided drop in prices if continued. Local industries are fairly well supplied and good deliveries on contract in many cases allow some diversion of contract coal to bunker sales. This has cut a hole in bunker prices and brought the entire market to a more even level.

Exports for the first part of September have dropped. The first week shows a movement of only 46,429 tons of cargo and 2,945 tons of bunker. Loadings in sight, however, are expected to run the month's total above the 300,000-ton mark, despite the necessity of having both the ship and coal ready before a permit is granted.

Anthracite — Receipts have been almost wiped out by the miners' "vacation." It is hoped that the stand of President Wilson will cause the men to gradually resume work. A big gap has been made, however, and with the local supply already very short, dealers are pessimistic over the outlook.

NEW YORK

Receipts Are Slowing Up — Shortage May Ensue — Prices for Independents Stiffen — Bituminous Demand Is Slow and Price Easy — England's Threatened Strike May Raise Prices.

Anthracite—Should shipments continue in their present reduced state for any great length of time conditions here would be serious. No great hardship is expected, however, as most consumers have part of their winter coal put away.

The advance in the price of coal at the piers has occasioned comparatively little complaint. Retail prices have increased correspondingly, but there are instances where no quotations are being given because the dealer has no coal to sell. Stocks on hand are being delivered in small lots only.

Reports that labor trouble in and around Pittston is likely to be settled soon was welcome news. A resumption of shipments from those mines would go a long way toward alleviating the situation.

President Wilson's refusal on Sept. 10 to reopen the wage negotiations is expected to be favorably received by the industry. What effect it will have upon the workers themselves is problematical.

All of the prepared coals are badly needed. Independent coals are scarce, most of the output having been sold up. Although Canada is said to be well prepared for winter, buyers are still trying to get additional tonnage.

The steam coals are becoming scarcer. For the independent coals at the mines some dealers were quoting buckwheat $6@$6.25; rice $4.25@$4.50 and barley $3@$3.50.

Quotations for company coals, per gross ton, at the mine and New York Tidewater, lower ports follow:

	Mine.	Tidewater.
Broken	$7.60@$7.75	$10.21@$10.36
Egg	7.60@ 7.75	10.21@ 10.36
Stove	7.85@ 8.10	10.46@ 10.71
Chestnut	7.90@ 8.10	10.51@ 10.71
Pea	6.10@ 6.55	8.57@ 9.02
Buckwheat	4.00@ 4.25	6.47@ 6.72
Rice	3.00@ 3.50	5.47@ 5.97
Barley	2.25@ 2.50	4.72@ 4.97
Boiler	2.50@ 2.75	4.97@ 5.22

Bituminous—Suspension of the anthracite mines did not create the anticipated increased demand for bituminous. Market conditions are not active. Prices are low and certain shippers expect a further break. A continuation of the suspension in the hard-coal fields and the inauguration of the English strike will, however, likely stimulate prices.

The report that the suspension of Service Order 11 only applied to the mines and not to the piers raised a storm of protest here. A telegram was sent to the Interstate Commerce Commission asking that the suspension be made permanent, as coal men believe that New England consumers are well prepared for cold weather.

Car supply is improving. Most of the roads are furnishing over 60 per cent. Many new miners are coming into the fields because of the anthracite troubles. It is expected many will remain permanently.

There is no demand and not much coal is being offered. There are many loaded boats lying about and among them some "hot" cargoes which in some instances have been offered at lower prices than coal f.o.b. piers.

Coals along the New York Central lines were being quoted $8.35 at the mines. Later quotations varied, ranging $7.50@$9.50 for the cheaper grades. On Pool 18 the range was $7.50@$8.50 and at the piers up to $13.50. For Pool 10 and better, prices ran as high as $14.50.

Lake

BUFFALO

Relief Anticipated with Close of Navigation—Demand Is Not Very Active—Uneasiness Displayed Over the Anthracite Mining Outlook.

Bituminous—The effort is apparently being made in some operating quarters to maintain high prices, but the Buffalo jobbers are not assisting. The only way to get miners' wages down to the union scale everywhere is to cut down the prices till they have to drop. Here is a conflict in sight that may last some time.

A good many of the consumers are holding off and refusing to stock high-priced fuel, some of them even shutting down rather than pay a premium. This will have its effect, but more of it will have to be done before there are results. Jobbers are doing what they can by making the most of their low-priced contracts. At the same time consumers appear to be getting what coal they want.

The situation is easier from week to week. Not much complaint is heard of car shortage, and when the priority order to ship to the Lakes is off the rush of coal this way will be heavy. It may be that this will be needed to bring down the prices.

About all that consumers will pay for steam coal is $7.50@$8.50, though it is hard to get uncontracted coal for that. Predictions of further decline continue, but the actual falling off is slow.

Anthracite — The situation is anything but encouraging. Production is far short of demand, though before the late disturbance among the miners it might have been sufficient to meet actual consumption. The men have done little work for some time and the way they come back to the mines is not encouraging. Meanwhile, the shortage is daily growing most serious.

The anthracite consumers are anxious. They see winter coming with no coal ahead but they say nothing about the late advance in prices. The city price now is $13 for grate and egg, $13.25 for stove and chestnut, $11.10 for pea and $9.40 for buckwheat. Consumer has a top cost of $2.50@$2.75 above this. The advance over August is $1.05 for the larger sizes and 90c. for pea and buckwheat.

Lake—Shipments are so far pretty good, being for the week 103,000 net tons of which 14,000 tons cleared for Chicago, 17,100 for Milwaukee, 14,000 for Sheboygan, 1,300 for Racine, 40,100 for Duluth and Superior, 10,000 for Fort William and 6,500 tons for Port Arthur.

Freight rates are very irregular, depending on the handling facilities at unloading ports, a small dock often paying 15c.@50c. over a large one in the same port. The rates are $1.50 to Racine, 75c.@$1 to Chicago, 60c.@90c. to Milwaukee, 60c. to Sheboygan, Duluth, Fort William and Port Arthur.

Coke—The price is very unsteady, but jobbers are generally able to get 72-hour foundry $18@$18.50 at the ovens and $15 for 48-hour furnace. The very high price of $20 is asked for crushed domestic coke. Actual sales are light.

MILWAUKEE

City May Resort to Coal Rationing—Competitive Buying Causes Famine Scare — Lake Receipts Show Improvement.

There may be strict rationing of coal to Milwaukee consumers during the coming winter unless anthracite production is speedily resumed. Not-

withstanding this serious outlook, dealers say it is improbable that there will be any increase in price of anthracite. Deliveries of hard coal have been above normal thus far the present year, and it is figured that fully 40 per cent of the users of this grade of fuel have secured their winter supplies.

Individuals and firms have bid against each other and accumulated enormous stocks while others have been compelled to get along with moderate supplies. Several big industries in the city are running on a hand-to-mouth basis. Unless the fuel supply will be adequate, the city libraries and the public museum may close for the winter months.

Receipts by Lake thus far in September compare favorably with the record of the same period last year. The total receipts of hard coal by Lake this season aggregate 536,046 tons, soft coal 1,155,943 tons. Last year 580,371 tons of anthracite and 2,225,025 tons of bituminous had been unloaded.

The following schedule of prices prevails in the Milwaukee coal market:

	Per ton.
Anthracite—	
Stove and nut	$15.05
Egg	14.80
Buckwheat	11.50
Plus an extra charge of $1 per ton if coal is carried into bins or cellars.	
Bituminous—	
Youghlogheny and Pittsburgh lump	$12.50
Youghlogheny and Pittsburgh pile run	11.50
Youghlogheny and Pittsburgh screenings	10.00
Hocking screened	12.50
Hocking pile run	11.50
Hocking screenings	10.00
West Virginia splint screened	14.00
West Virginia splint pile run	12.00
West Virginia splint screenings	10.00
Pocahontas screened	15.25
Pocahontas mine run	12.00
Pocahontas screenings	11.00
Kanawha gas mine run	12.00
Smithing	13.00

CLEVELAND

Heavier Receipts Promised Cities — Better Movement Is Predicted — Lake Dumpings Slightly Lower — Retail Stocks Are Low, but Price Unchanged—Mine Prices Soft.

Bituminous — Labor Day interruptions resulted in diminished coal production but output is again improving. Temporary congestion on a number of roads was partly the cause but this situation also is being cleared away.

In conference with representatives of northern Ohio cities, operators and rail representatives promised relief to apprehensive communities. Owing to the large shipment to Lakes it is estimated that the receipts at these cities have been reduced 85 per cent.

It is feared that even if production were sufficient to supply all needs after the Lake season ends, railroad facilities would be inadequate to handle same. Under the plan put forth by the operators deliveries to various cities are to be increased. Cleveland is promised 115 cars daily, cumulative from Sept. 1, which compares with an average of 34 cars previously.

Operators believe that under the stimulus of better freight movements they will be able to take care of the Lake trade, public utilities and railroads as well as affording the cities temporary relief. The communities concerned, pending the trial of this plan, have dropped their campaign to get a modification of Order 10.

Mine prices for No. 8 slack and mine run are still soft at $8.75@$9.

Pocahontas and Anthracite — Pocahontas dealers are hoping for better supplies as a result of the above plan of operators to increase city shipments. Retail stocks are extremely low and householders are becoming insistent upon deliveries. Sufficient coal will probably be received to care for immediate needs, carrying the trade over to the end of navigation, when ample tonnage should be released. Due to labor troubles in the anthracite regions receipts are exceedingly small.

Lake—Dumpings are slightly less. This is occasioned by a temporary decline in freight movements resulting from the Labor Day holiday. Sufficient bottoms are available for coal and are being loaded out as rapidly as coal is received. Better movements during the latter part of the month are predicted.

Retail prices of coal per net ton delivered in Cleveland follow:

Anthracite—Egg $16@$17.50, chestnut and stove $16.25.

Pocahontas — Shoveled lump $16, mine run $12.50.

Domestic Bituminous—West Virginia splint $13.25; No. 8 $12, Millfield lump $14.50, Cannel lump $15.

Steam Coal—No. 6 and No. 8 slack $12.60@$12.75, No. 6 and No. 8 mine run $13.60@$14.25; No. 6, 3-in. lump $14.45.

Inland West

CHICAGO

High Prices Continue — Larger Consumers Are Retiring From Market—Domestic Situation Is Causing Considerable Apprehension.

High prices are prevailing in spite of the fact that very few big industries are buying much coal. Operators and jobbers are having no difficulty in obtaining their price, even though the more important consumers are not in the market.

The public is now very much worried over the coal problem, and there is some talk of the Chicago Association of Commerce undertaking a vigorous campaign, warning the public to conserve supply. Coal men are of a divided opinion as to the benefits to be derived from such a campaign. Doubtless some fuel would be saved, but, on the other hand, the public would be thrown into an unnecessary panic and pressure would be brought to bear on the market.

While there has been but slight activity in the steam coal market, the demand for domestic is perhaps a little more urgent than it has been this year. Dealers are willing to pay almost any prices for good prepared coal. The great demand is for southern Illinois coals, like the Franklin County product, but, on the other hand, dealers are glad to get coal from the other less favored fields. Eastern coals are becoming scarcer every day.

MIDWEST REVIEW

Prices Are Firm — Labor Conditions Are Unsettled — Car Supply Is Inadequate.

Prices are firm, and the tendency of the market is upward. The main factors in keeping prices at their present high levels are unsettled labor conditions and abnormally poor car supply. Both factors are prevalent in all of the Middle Western producing fields.

The labor difficulties encountered in the Springfield district over the price of powder appear to have been settled, as has the "outlaw" strike of the mule-drivers in the Belleville district. The differences of opinion between Iowa operators and miners has also been adjusted, and mines are now reported working again.

The whole question of coal mine labor is getting to be most unsatisfactory, both to the public and the operators. Now that the day-men at the mines have acquired their increase, it is thought pretty generally that the miners themselves will feel that they are entitled to more money. The result, of course, will be another strike. It might be said that the operators in Northern Illinois have already been faced with this question, and a number of mines are now down.

The unsatisfactory feature of the whole problem is that labor is loafing on the job. It makes no difference whether or not the wage scale is satisfactory, or whether there is an opportunity to work, the men are not producing anywhere near the coal that should be mined. If labor really made up its mind to do some real work, the tonnage from the mines in the Middle West would be increased to a marked extent. It is a common thing to hear of the men refusing to go to work on Saturday morning, even if the mines are provided with cars enough for a satisfactory day's run.

The car supply has not improved and it will doubtless be shown that the Middle West mines received only a 40 per cent supply during the past week.

Prices on coal produced in this territory are as follows:

Northern Illinois (Spring Valley, Wilmington, etc.,) on contract: Prepared sizes $4@$4.25, screenings $3.25 @$3.75. Current sales: Prepared sizes $5.50@$7, steam $5@$6.50.

Central Illinois, (Springfield and Peoria districts) on contract: Prepared sizes $3.50@$4, mine run $3@$3.25, screenings $2.50@$3.25. Current sales: Prepared sizes, $6.25@$8.50, mine run $6@$7.50, screenings $6@$7.

Southern Illinois, (Franklin, Williamson and Saline Counties) on contract: Prepared coal $4.25@$5.50, mine run $3.75@$4.25, screenings $3.25@$4.25. Current sales: Prepared coal $7.25@ $8.50, mine run $7@$8, screenings $6.75 @$7.50. All prices f.o.b. mines.

INDIANAPOLIS

Operators See Effect of New Price-Fixing Law — Demand Is Lighter — Prices Show Slight Decline—Car Situation Is Clearing.

Operators believe they can already see some effect from the recent ruling of the Federal Court Sept. 6, when it was decided that a coal commission created for the purpose of fixing prices in the state was legal and binding. Several operators say that the ruling has had a decided effect on the buying public in that they have quit buying in large quantities, preferring to wait until the operation of the law is put into effect. At the present time little change has been noted in price, but the demand is slow. Steam prices are slipping a little.

The car situation appears to be clearing up. Operators on the Pennsylvania R.R. say that road during the past two weeks has been showing every disposition to co-operate with them to provide better service. Other roads are improving in this feature of production to a marked degree.

LOUISVILLE

Coal Shortage Is Unabated — Export Demands Controlling Spot Market—Strikes Curtail More Operations — Prices Are Firm.

Retail yards are empty, with not much prospect of improvement until after Lake shipments end and public utilities priority is lifted.

Export buying has opened up stronger as a result of weakers prices. Considerable tonnage is moving toward Savannah and Charleston from Southeastern Kentucky. Northeastern Kentucky export shipments are handicapped by embargoes.

There is not much coal available for industrial or domestic use. It is claimed that exporters are controlling the spot field today.

There is very little Western Kentucky coal available in the market just now due to priorities, strikes and continued car shortage. Louisville retailers are paying $8.50 for West Kentucky lump, the freight making $9.25 on yard. The retail price is $11.50 a ton.

River movement has been greatly curtailed by the heavy demand, it being more profitable to ship by rail and avoid chances of heavy losses in hazardous boating.

It is claimed that public utilities are stocking coal heavily. Detroit has been securing very large supplies and the same situation holds good elsewhere. Assigned cars are taking a large percentage of production.

There are a few scattered strikes in the Southeastern Field, principally around Pineville, with trouble also in Pike County, on the West Virginia border. This trouble is not affecting the field as a whole, in view of the short car supply.

Gas coal is selling around $10.25 a ton; steam coal $9.50@$9.75. Assigned car coal is being sold $6@$7 a ton.

DETROIT

Active Demand Continues — Receipts Are Altogether Inadequate — Anthracite Stocks Are Depleted.

Bituminous—While some consumers are withholding orders in the expectation of lower prices, the number apparently is so small as to make little appreciable difference in the volume of inquiry coming to wholesalers and jobbers. Consumers are all manifesting a lively interest in the market, although not making much headway toward getting winter stocks.

The movement of coal into Detroit is altogether inadequate. The greater proportion of incoming shipments is to meet the current requirements of industrial and manufacturing plants and the public utilities.

The supply is too slender to enable steam coal users in general to accumulate reserves that are necessary to assure continuance of operation during the period when unfavorable transportation conditions will make a regular supply uncertain.

There is a small amount of coal coming from Ohio and very little from West Virginia or Kentucky, except stock sent to apply on longtime contracts. Mines in Indiana and Illinois are contributing only a limited quantity of coal, labor troubles in these districts having curtailed shipments.

Anthracite—Uncertainty as to the future and a very inadequate supply in the present, create an unsatisfactory condition in the local market. Prices to householders range $14.25 for egg to $16.75 for chestnut, and predictions are being made by some of the dealers that a considerably higher price level will be attained.

Few retail yards have any stock on hand and dealers who have been unable to get shipments during the summer find that the present labor troubles are cutting off even the small amount of stock previously obtainable.

COLUMBUS

Production Is Reduced During Week—Car Supply Is Estimated About 65 Per Cent — Demand for All Grades Is Strong and Prices Range High—Lake Trade Is Progressing Satisfactorily.

Production is still restricted by car shortage although some fields show an improvement. The car supply is still erratic and this has the effect of keeping the trade in a very unsettled condition.

Production in the Hocking Valley field was about 70 to 75 per cent while Pomeroy Bend, Crooksville and Cambridge supply was about 65 per cent. Eastern Ohio shortage is still acute and production is not much over 55 to 60 per cent.

The Lake trade is still attracting the major portion of tonnage. Lake priorities still hold fast despite efforts to have them amended and dumpings at the docks have been exceptionally heavy. Much encouragement is felt over the situation and it is believed the Northwest will be well supplied. Lake prices are holding fairly firm in all fields. The usual figures offered for Lake tonnage range $5.75@$6.50. Vessel movement is improving.

The retail trade is quiet as a result of lack of stocks. Dealers are now apportioning the available supply to various customers. Householders are getting anxious and are bringing their pressure to bear to have priorities suspended. It is realized that a heavy burden will be thrown upon dealers when tonnage is available, as only about 27 per cent of the winter's supply has been stored.

Steam business is strenuous and there is active bidding for free cargoes. Prices are maintained at high levels with no weakness appearing. Public utilities are well supplied under the priority orders. Manufacturing concerns are able to operate from hand-to-mouth and no shutdowns of consequence are attributed to fuel shortage.

Retail prices in Columbus are: Hocking lump $8.50@$9.50, mine run $8@$9.25, Pomeroy lump $9@$10, mine run $8.50@$9.50, West Virgina lump $10.50@$11, mine run $10@$10.50, Pocahontas lump $11.50.

Prices at mines of the various coals used in Ohio are:

Hocking lump	$5.50@$8.50
Hocking mine-run	5.00@ 8.25
Hocking screenings	5.00@ 8.00
West Virginia splints, lump	6.50@ 9.00
West Virginia splints, mine-run	6.25@ 8.75
West Virginia splints, screenings	6.25@ 8.50
Pomeroy lump	6.50@ 8.50
Pomeroy mine-run	6.25@ 8.25
Pomeroy screenings	6.50@ 8.50
Pocahontas lump	8.00@ 9.50

South

BIRMINGHAM

Production Is Not Seriously Crippled by General Strike Order—Car Supply Is Somewhat Improved — Market Is Strong for All Grades.

A summary of the situation incident to the general strike order made effective Sept. 8 shows that union leaders so far have signally failed to seriously disturb coal production. No large number of strikers were added to the list of those remaining idle from the local strikes which have been in force at different points for several months past. At most of these operations the places of strikers have been filled to a large extent by recruited labor.

Mines in the Birmingham district have been furnished a better car supply. While some time was lost due to lack of equipment, a fair output was obtained at all of the larger mines and at the small commercial and domestic operations with undisturbed labor conditions.

There is an acute demand for all grades of coal. Spot prices range from $8@$8.50 per net ton, mines, though a peak figure of $10 was reported the past week. Vessels at Mobile, New Orleans and other Gulf points are being badly delayed awaiting receipt of coal for bunker and export. Slow and inadequate loading facilities at the ports contribute to the delay.

News From the Coal Fields

Northern Appalachian

CONNELLSVILLE

Spot Market Is Easier, with Lighter Demand — Efforts Made To Negotiate First Half Contracts — Heavier Receipts on Contracts Reported.

Prices for spot coke have eased off perhaps 50c. a ton and the market generally is less active. The softening seems to be due to decreased demand rather than to heavier offerings. The decreased demand may be attributed to heavier receipts on contracts rather than decreased furnace requirements. As a matter of fact the production of pig iron is tending to increase. No blast furnaces are going out except for physical reasons, and some idle furnaces would probably blow in if they could secure an assured supply of coke. They would not, however, pay anything like the present spot market.

A few operators have approached customers on the subject of making contracts for the first half of 1921, this applying to both furnace and foundry coke, but have found consumers unresponsive, as they feel that the time is not ripe for contracting. On the other hand, it is related that some consumers have applied to operators with whom they have contracts running, on the subject of first half contracts and in this case also there was no disposition to get together.

The spot market is quotable $17@$17.50 for furnace and $18.50@$19 for foundry, per net ton at ovens.

The *Courier* reports production in the Connellsville and Lower Connellsville region for the week ended Sept. 4 at 196,590 tons, a decrease of 14,510 tons. The holiday had much to do with the decrease.

PITTSBURGH

Car Supplies Improve — Many Mines Operating to Limit of Men's Willingness To Work—Spot Market Is a Shade Stronger.

Car supplies continue to increase and a larger number of mines are now supplied with practically as many cars as their men are willing to load. The last weekly report for the rail mines shows production at 78.6 per cent, the losses being 8.9 per cent from transportation disability, 7.8 per cent due to labor shortage and 4.7 per cent from mine disability.

Practically all the loss of production was attributed to car shortage by some mines, to labor shortage and mine disability by others. The time was when practically all the loss was from car shortage but the increase in car supplies has uncovered a labor shortage at many mines. The river mines showed no transportation or mine disability, their curtailment in production from rated capacity being 10.6 per cent, all ascribed to labor shortage.

It is improbable that the rail mines would find their men willing to work up to 90 per cent of rated capacity, although 85 per cent might be attained, and this would compare with 78.6 per cent production in the week reported.

The spot market is a little stiffer. A week ago $8 was regarded as the regular quotation on steam coal and in fact that figure had been shaded in occasional instances. We quote the spot market $8@$8.50 for steam and $9@$9.50 for byproduct and gas. Tidewater is likely to bring an extra price, on account of difficulty in securing permits and making shipment.

UNIONTOWN

Coal and Coke Prices Drop — Demand Slackens with Improved Car Placements—Outlook Is Good.

Prices have dropped this week on both coal and coke sales and judging from indications, next week should show a continuance of the present softening market. Car supply recovered nicely from its slump and with it came a slackening in demand and resultant shrinkage of prices. Placement of coke cars was particularly improved.

Furnace coke dropped $2 per ton to $16, with foundry grades slightly higher but correspondingly under the former quotations. An even larger car supply next week is anticipated through the diversion of idle equipment from the anthracite region, continuance of the hard coal miners' "vacation" being expected to help local car placements. Recent wreck on the Monongahela Ry. at Brownsville may temporarily embarrass car placement. Traffic was suspended 24 hours and delays in transit of consignments resulted.

Monongahela Ry. car placements this week have been good. The Pennsylvania R.R. put down fully 50 per cent of required equipment, placing in the first five days of the week a total of about 725 cars against requirements of 1,400 for coal loads. A like supply was also given by the Pittsburgh & Lake Erie R.R., some 500 empties being placed on requirements of approximately 900 cars. Coal car supply on the Southwest branch was about 80 per cent and on the Redstone practically the same.

Coke car supply was much better. About 150 per cent was registered by both Pennsylvania and Pittsburgh & Lake Erie on the Monongahela rails, the former placing over 2,000 cars when but 1,300 were required and the latter putting down nearly 1,400 against requirements of 990. On both Southwest and Redstone branches between 80 and 90 per cent in coke car placement was reached.

CENTRAL PENNSYLVANIA

Clearfield Miners May Get Increase—Prices Are Lower — Car Situation Is Unchanged — Wagon Mines Protest Order 14.

Following a meeting of coal operators in Clearfield County it was announced that they would not confer with representatives of the miners to

Estimates of Production

FROM THE WEEKLY REPORT OF THE GEOLOGICAL SURVEY

BITUMINOUS COAL

	1920 Week	1920 Calendar Year to Date	1919 (a) Week	1919 (a) Calendar Year to Date
Aug. 21*b*	11,039,000	336,023,000	10,675,000	287,270,000
Daily average	1,840,000	1,692,000	1,779,000	1,446,000
Aug. 28*b*	11,390,000	347,413,000	10,443,000	297,713,000
Daily average	1,898,000	1,698,000	1,741,000	1,455,000
Sept. 4*c*	11,051,000	358,464,000	9,651,000*d*	307,364,000
Daily average	1,842,000	1,702,000	1,821,000	1,459,000

ANTHRACITE

	1920 Week	1920 Calendar Year to Date	1919(a) Week	1919(a) Calendar Year to Date
Aug. 21	1,595,000	55,712,000	1,862,000	52,678,000
Aug. 28*b*	1,818,000	57,530,000	1,941,000	54,619,000
Sept. 4*c*	1,084,000	58,614,000	1,349,000	55,968,000

BEEHIVE COKE

United States Total

Week Ended Sept. 4 1920 *c*	Week Ended Aug. 28 1920 *b*	Week Ended Sept. 6 1919	1920 to Date	1919 *a* to Date
395,000	419,000	448,000	14,450,000	13,246,000

(*a*) Less one day's production during New Year's week to equalize number of days covered for the two years. (*b*) Revised from last report. (*c*) Subject to revision. (*d*) Week of Labor Day holiday.

discuss a new wage scale. However, they expressed a willingness to increase the wages of day men $1.50 and trapper boys 83c. a day. This makes the wages the same as in the Pittsburgh Field.

Coal prices, especially in Cambria County, are still showing a downward trend. The highest price quoted this week was $9.50 a ton, with the wagon mines selling as low as $7.50.

The car situation throughout the central Pennsylvania Field shows little sign of change and was described as "fair." Operators of wagon mines, of which there are a large number in Cambra County, are not satisfied with the present system of car distribution which they characterize as unfair. Reduced to box cars on all the Pennsylvania lines, the wagon loaders do not believe they are getting a square deal.

Representatives of the Pennsylvania Wagon Coal Shippers' Association went before the Interstate Commerce Commission in protest against Order 14. The commission was asked to rescind or modify the order which is a sweeping one. The wagon loaders assert this will put them out of business if enforced.

NORTHERN PAN HANDLE

Cars Are More Plentiful—Lake Shipments Heavy—Prices Are Down—Rail and Labor Conditions Improve.

Cars furnished for the first period of September were not much more than sufficient to transport heavy tonnage required for the lakes. Hence, mines had little commercial coal available.

An improvement in dumping facilities at the Lakes was reflected in better movement of cars. Labor conditions, aside from the usual shortage of men, were rather conducive to larger loadings.

While prices were down to some extent, nevertheless, there was a ready market for output. The best market was at the Lakes but owing to the fact that producers were being called upon to make such large Lake shipments, it was found somewhat difficult to take care of existing contracts.

Transportation conditions in eastern Ohio were about on a par with those across the Ohio River in the Pan Handle region, with a large movement to the Lakes in evidence and with the rail movement of coal all that could be expected.

FAIRMONT

Car Supply Improves Slightly — Shippers Incensed Over Alleged Abuse of Assigned Car Privilege—Lake Shipments Are Heavy—Prices Soften.

Loadings were larger during the first part of the period ending Sept. 4, because of a perceptible increase in the car supply. About the middle of the week there was the usual slump. On the Monongahela R.R. a large proportion of the cars were being assigned during the week. Production was at the level maintained throughout the previous week.

Charges were being circulated that the Baltimore & Ohio R.R. was tipping off certain operators as to impending shortages and suggesting the loading of railroad fuel, and it was charged that the road was greatly abusing the assigned car privilege. As a result many shippers were up in arms.

The railroads seemed to be getting more than their share of coal. Shipments to the Lakes and for export were very much curtailed as the week drew to a close. While exports probably were larger than during the previous week, yet shipments were greatly restricted, through difficulty in securing permits to cover.

Lake loadings were in excess of those for the period ending Aug. 28, owing to a better car supply and also partly because of the embargo on New England shipments, some producers sending their coal to the Lakes in preference to other markets.

While there was no decided break in prices in northern West Virginia they appeared to be somewhat softer.

Middle Appalachian

VIRGINIA

Week's Production Placed at 75 Per Cent of Capacity — Wagon Mines Suspend Operations — Prices Drop $3 in One Week.

Production for week ending Sept. 4 amounted to 173,000 tons. Shortage of cars and insufficient man power were responsible.

The effect of Service Order 14 in Virginia caused a virtual suspension of operations at all wagon mines. While a falling market would undoubtedly have reduced this production, yet Order No. 14 has hastened such cessation of operations.

Prices were undergoing further downward changes, reaching $9 early in the second week of the month. This was a drop of $3 a ton as compared with prices prevailing during the previous week.

POCAHONTAS AND TUG RIVER

Production Rises with Better Car Placement—Lakes Priority Shipments Are Heavy — Price Recession Continues — Labor Situation Is Much Improved.

Better conditions were enjoyed along the Norfolk & Western R.R. during the first week of September. Production in the southern tier of counties was increased. Western shipments, particularly those for the Lakes, were on the increase.

The last two days of August in the Tug River Field were marked by an increase in production. A car shortage developed during the last day or two of the week and transportation conditions were not very satisfactory. A large tonnage was moving to Tidewater for export. Fully 35 per cent of the output was sent to Lake points. While prices for spot coal were on a lower level they were still much in excess of contract prices. The fact that spot buying was not as active as formerly had no effect whatsoever on production.

Ground lost during the last fortnight of August in the Pocahontas Field was partially regained during the first few days of September. The car shortage was not such as to cause a great deal of idleness at the mines. Although labor shortage losses were still hovering around 40,000 tons a week yet the morale of the miners was improving. With winter only a few months away the chances of a strike are diminishing, there being insufficient union sentiment in the field to make the possibility of organizing the Pocahontas Field imminent.

Not only were export shipments from the Pocahontas Field increased after Service Order 11 was suspended, but Lake shipments also were believed to be larger. Producers in general looked upon lower prices with favor, there having been a drop in the Pocahontas region just as in other fields.

KANAWHA

Production Improves Slightly — Lake Shipments Increase — Demand Is Lighter and Prices Decline Further.

Although the weekly production was slightly improved, mines were still greatly handicapped by a shortage of cars. Due to a brief suspension of New England priority Service Order 11, more coal was available for Lakes. Export shipments were somewhat larger in volume, the previous week's embargo to Tidewater having been removed as to unfilled permits only.

The market in the Kanawha region was much softer than during preceding weeks, although production was easily marketed. Prices for spot coal were in the neighborhood of $9. For the time being, however, buying was not as heavy as it had been. The sudden cessation of orders was more apparent in the East than in the West. Expectation of further car shortages has caused representative coal men to predict that prices would not go much lower.

NEW RIVER AND THE GULF

No Improvement in Car Supply — Released New England Tonnage Flows Westward — Lakes and Export Shipments Are Good—Prices Are Lower.

A scarcity of cars on the Chesapeake & Ohio R.R. in both fields held down the production during the first week in September. At the same time there was a recession in price, but it was easily possible to market all the coal produced. Inquiries were less numerous from eastern markets but there still seemed to be as heavy a demand as ever in the West. Much coal was also being exported.

Complaint was general throughout the New River Field of a scarcity of cars during the entire weekly period. Not even on Monday was there anything like an adequate supply of empties and subsequent to that date there was a decided slump in the supply. Production was very much below that of the preceding week.

There was a slight increase in the western movement and more particularly to the Lakes. The downward trend of prices caused the general run of producers little or no concern, there being a ready market for all the coal mined.

Inadequate transportation facilities afforded by the Chesapeake & Ohio R.R. were largely responsible for holding down production in the Winding Gulf Field. More cars were available on the Virginian Ry. With no coal going to New England, exports were increased to some extent, at least from mines shipping over the Virginian, there being no western movement from that section.

There was not the wild scramble for coal there had been, owing to the fact that the trend of prices was downward rather than upward.

LOGAN AND THACKER

Logan Production Increases, Due to Improved Car Supply — Williamson Labor Trouble Waning — Buyers Holding Off in Face of Falling Prices.

An accumulation of cars enabled Logan mines to exceed the previous week's production. The largest day's output for the year was 64,000 tons on Aug. 30. One result of the betterment in car supply was to make it possible to ship more coal to the Lakes. New England shipments were destined elsewhere but Tidewater coal increased following the lifting of an embargo.

Prices were falling and buyers refrained from placing orders, pending developments. Less buying did not retard production, owing to a very general demand in the West.

Production slowly increased in the Williamson Field, more miners returning to work after the advent of United States soldiers. Not only were a number of plants able to increase their working forces but the Red Jacket Coal & Coke Co. and the Glen Alum Coal Co. started operations at their mines which had been closed down since early in July. While attacks were made early in the week on two plants despite the presence of soldiers, such attacks did not deter miners from continuing work. After these attacks no further trouble was experienced. Losses entailed by the strike were running rather heavy but strike sentiment was gradually dying out. A strike was called for the Pond Creek section on Sept. 1 but few if any miners responded.

NORTHEAST KENTUCKY

Car Supply Is Unchanged—Substantial Tonnage Goes to Lakes—Prices Moderate Chiefly on Eastern Orders.

There was little change in the car supply for the week ending Sept. 4. Mines were still limited to about half of potential capacity. Car supply dwindled throughout the week. Lake shipments, fairly large on the first day of the week, were rather small after that date.

While mines in other fields were in idleness on Labor Day, which was observed as a general holiday, there was no general suspension of mining activities in this field.

It was not possible to resume Tidewater shipments, owing to an embargo. While prices were moderating somewhat, the change was not so marked in western markets as in the East. There was ample market for all the coal produced, owing to Lake and contract demands. About the only effect of price recessions, therefore, was to curtail activity in spot buying to some extent.

Southern Appalachian

SOUTHEASTERN KENTUCKY

Department of Justice Will Not Allow Set Prices—Rate Complaints to Be Heard—Wagon Mine Operations Are Curtailed.

Harlan, Hazard and Southern Appalachian operators were unsuccessful in their recent attempt to have the Government appoint an administrator or else set prices of bituminous coal in this section. The Department of Justice has announced that no prices would be fixed.

The southeastern coal associations are preparing material to be used in complaints to be heard at Cincinnati by the Interstate Commerce Commission in the matter of rate on coal to Lakes from Louisville & Nashville R.R. points in eastern Kentucky.

Wagon operators in some sections of the state are reported to have quit operations when open cars were barred from use. Others are loading box cars where they can get that class of equipment. A ready market for box-car coal is obtained, at prices only slightly lower than that for open-top equipment.

WESTERN KENTUCKY

Fresh Strike Troubles Are Cutting Production—Car Supply Is Worse—Little Coal for Spot Shipment—Considerable Amount Shipped in Assigned Cars.

Conditions are again bad, due to a fresh strike, principally in Muhlenberg County, but also affecting Henderson, Union, Davies, McLean and Ohio Counties to some extent. Operators state that there are about 2,000 miners out, while others place the number at 8,000. A peculiar condition is said to exist. Where companies operate several mines one mine will be out one day and the next these men will go back to work and another mine will be down, indicating an attempt on the part of the union men to work partial time and "give everyone a chance."

The car supply has been worse than usual for the past few days. Supply for last week was about 15 per cent on the Kentucky division of the Illinois Central R.R. and 49 per cent on the Louisville & Nashville R.R.

Very little new business is being booked as a result of heavy movement of assigned cars, contract coal, railroad demand, etc. Last week there was so little new business accepted that there was hardly a market.

Quotations made Louisville retailers and consumers show Western Kentucky lump $8.50 a ton, mine run $8, nut and slack $7.50.

Middle Western

INDIANA

Many Wagon Mines Close — Another Strike in Prospect — Situation Is Critical.

A number of wagon mines in western Indiana will be forced to close down immediately on account of the order forbidding railroads to provide them with cars. Many small mines have been opened near Linton, Indiana, since disputes between the operators of larger mines and miners arose.

What with operators and miners under indictment, a new coal commission that is trying to function and a prospect of another coal strike—this time the loaders who think they have been left out in the cold by wage agreements—Indiana is in a bad way for coal. It is safe to say that 85 per cent of the state's industries are on the verge of closing down.

IOWA

It is shown that almost every small town in Iowa, with the exception of those that are mining centers, is destitute of coal, according to answers to a questionnaire sent out by the State Transportation Committee. Between 800 and 1,000 answers to the questionnaire have been received and more than half of them report that no coal is on hand at present. Others state that only a very few tons at most are in the towns. As a rule, the larger towns and cities fare better.

Western

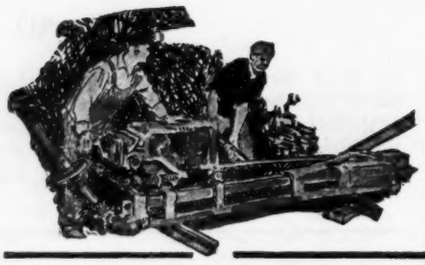
UTAH

Wyoming Competition Is Temporarily Removed—Freight Increase Being Contested.

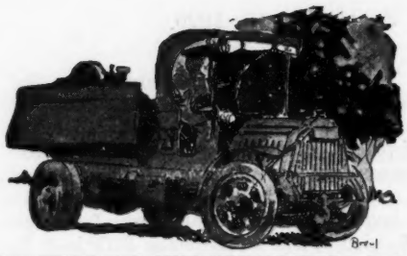
Competition from Wyoming coal fields has practically ceased as that fuel is now selling at $1 above the Utah price. This is partly due to the increase in freight rates in Wyoming, which was not permitted by the Utah Public Utilities Commission.

It is stated in Salt Lake City that a line of 50 Trans-Pacific and coastwise vessels, with headquarters in Seattle, is making arrangements to buy Utah coal exclusively as soon as assurance is given that a steady supply can be secured.

It is expected that the refusal of the Utah Public Utilities Commission to grant the increase in freight rates allowed by the Interstate Commerce Commission will result in the matter being carried to the U. S. Supreme Court.



Mine and Company News



ILLINOIS

Tamora—The Alladin Coal Co., which recently purchased a mine here and also operates several other mines in this county, has announced that plans are completed for the erection of about 30 new resident houses for the miners. The houses will be somewhat better than the average, having all modern installations. This step is taken in anticipation of bringing more miners within range of the mine which is greatly hampered by man shortage.

Springfield—The "Spring Creek" mine recently broke its hoisting record by hoisting 1,606 tons in eight hours. The mine has been in operation for over fifteen years. The total number of cars hoisted and dumped during the day the record was broken, was 800.

Coulterville—The Perry County Coal Corporation, have been experiencing considerable trouble with a near race-riot. When a cage operator refused to let a negro down the shaft the company fired him. Three hundred white miners employed at the mine went out on strike, and that night burned the negro's house down. Many negroes left the town since this demonstration due probably to fear that another such occurrence might happen.

INDIANA

Sullivan—Mines and all the mineral holdings of the Consolidated Indiana Coal Co., and approximately 10,000 acres of other mineral land in Hamilton, Curry and Jackson townships became the property of John L. Baker, Wm. E. Baker, Frank P. Emison, Frank P. Culbertson and others of Terre Haute and Vincennes in a deal completed recently.

Jesse—Daubenspeck Coal and Land Co., owning and selling lands, was incorporated recently at a capital stock of $100,000. D. Forest Early, A. W. Daubenspeck, Roy Daubenspeck, all of Mullens, Fred N. Stewart, and Hartley Sanders, Princeton, were the incorporators.

KENTUCKY

Whitesburg — Unusual development activity is everywhere evidenced in coal fields in this section, especially along the L. & N. branch on the Kentucky River headwaters.

Sergent—The Imperial Elkhorn Coal Company is making powerhouse and electrical improvements, building a new tipple and opening new mines. Near by the Elkhorn Collieries Company is increasing its production. The Apex Coal Co., Bastin, also is making improvements to double production.

Boone's Fork—The Logan Elkhorn Coal Corporation will make a number of improvements that will necessitate a largely increased production. This company has obtained new areas of coal lands recently and a new town soon will be under construction. It is expected that the New York work will be completed before 1921.

Smoot Creek—In the Dalna section the Consolidated Fuel Co., Pittsburgh, which recently located in Eastern Kentucky, is doing extensive development work. The company has taken over the Kentucky & West Virginia Coal Co., the Amburgy Coal Co., and the Blackey Coal Co. near Blackey, besides acquiring thousands of acres of additional coal lands, which will be opened for development before the end of the year.

This concern also is preparing to extend its branch railroad further up Smoot Creek to tap new properties. This company owns large mining plants in Pennsylvania, Ohio, Maryland and West Virginia, and its investment in Elkhorn field mines means much for this section.

Louisville—The Julius Fleischman, one of the biggest coal tow boats on the Ohio River, smashed things up badly at New Albany, Ind., last week, in delivering four barges of coal to the Finger Brothers Coal Co., when a signal cord broke, and the boat crashed into the dock. An excursion boat was struck, while the dock of the River Coal & Supply Co., and a sand dredger were sunk. A large gasoline launch was also damaged.

Pikeville—The Pinson-Elkhorn Colliery, has filed amended articles increasing its capital from $30,000 to $50,000. The Muddy Gap Coal Co., at Manchester, has incorporated with a capital of $3,000—D. M. Allen, M. F. Porter and D. L. Walker, Jr., incorporators.

MISSOURI

Freeburg—Articles of incorporation of the General Coal & Mining Co., capitalized at $100,000 have been filed. The company's principal office is situated at the St. Clair mine near Freeburg. The incorporators are Ernest L. May and Chas. F. Waters of St. Louis and W. F. Driemeyer of East St. Louis.

OHIO

Cleveland—The Goff Kirby Coal Co., are perfecting plans for the erection of a large building, 300 x 600 ft., on E. 39th St. and Payne Ave. Estimated cost about $200,000.

OKLAHOMA

Wimburton—Two miners were killed and at least eight more were entombed in the Doonan-McConnell mine at Doonan, three miles west of here, this afternoon when a gas explosion occurred.

PENNSYLVANIA

Oil City—It was learned here today that a vein of hard coal has been located near Pleasantville, in the northeastern part of Venango County, and that geologists from Harrisburg have been making investigations during the past few days.

The vein of coal is on the M. C. Beebe and J. Y. Siggins farms and was located through the drilling of oil wells. The vein, it is said, is from three to five feet in thickness and lies from 55 to 60 ft. below the surface.

Johnstown—The Knickerbocker Fuel Co. has purchased the Caldwell property on Vine St. for use as offices for the company. The property is 50 x 115 ft. and has a two-story brick, mansard roof, building.

Architect Henry M. Rogers of Johnstown has been engaged to make plans for remodeling. The plans will call for fifteen office rooms. A fireproof garage, to accomodate eight cars, will be erected in the rear.

Officers of the company are James A. Hill of New York, president, Telford Lewis, Johnstown, vice-president and W. P. Graff, Johnstown, treasurer. Subsidiary companies are Telford Coal Mining Co., Jasahill Coal Mining Co., Wilbur Coal Mining, Knickerbocker Smokeless Coal and the Somerset Coal Mining Co.

Lilly—Cambria and Blair County coal operators have formed and chartered the Bens Creek Collieries, Inc., for the purpose of supplying the coal needs of Altoona during the next few months. The new concern plans to put in operation 30 steel cars, each of 55 tons.

The mines are in splendid working condition and the capacity has been nearly trebled during the last two years. The 30 new steel cars were ordered from the Pressed Steel Car Co. and delivery has been promised by Oct. 1. The mining office will be located at Lilly while the mines are on the east side of Benscreek, along the Benscreek branch of the Pennsylvania R.R. and above Cassandra station.

Scranton—Mining of coal in the Briggs, or Capouse shaft, of the Scranton Coal Co., in the Keyser Valley section, where the breaker was totally destroyed by fire, will be resumed within a few days, officials of the concern announced after an informal conference.

Lisbon—The West Penn Coal Co., represented by John Seger, of Point Marion, Pa., has purchased several farms in Madison township.

All of the land sold at high figures, and the company will begin at once to strip the same for coal. The Youghiogheny & Ohio R.R. will run a switch into the new territory so that the coal may be marketed.

Waynesburg—Deeds have just been filed for record here conveying to the Pittsburgh Steel Co. several tracts of land in Monongahela Township, Greene County. Five tracts aggregating 436 acres were purchased at about $300 an acre.

The coal was owned jointly by Lenora T. Niccols, of Uniontown, and the Piedmont Coal Co.

Pittsburgh—R. B. Hays Fuel Co., has been organized with a capital stock of $50,000 to handle the product of coal in Pools 34 and 44 in the Pittsburgh area. R. B. Hays, president of the First National Bank of Masontown, W. H. Cover of Masontown and D. H. Christner of Connellsville are the incorporators. The company starts with taking the production from three mines, two near Leckrone and one near Gray's Landing on the Monongahela River, the coal coming from tracts comprising 200 acres in all.

Robindale—A million-dollar coal deal, one of the largest consummated in the Johnstown district, has been closed whereby the Robindale coal plant, including the mining village of Robindale, a short distance below Seward, was transferred from the Conemaugh Smokeless Coal Co., to H. D. Waldbridge & Co. of New York for the Penn Public Service Corporation, which is controlled by the purchasing company.

Harrisburg—According to present estimates, new rates for compensation insurance on coal mining are to be made effective about Nov. 1. Final decision in regard to the figures will not be made until some tests and experiments are made and inspections carried out. State insurance, compensation and rating officials have been at work for weeks on the basis for the new rates.

TENNESSEE

Chattanooga—An order has been issued by Judge A. M. J. Cochran, acting Federal Judge of this district, restraining District Attorney W. T. Kennerly and Edward Finlay, local agent of the Department of Justice, from securing warrants or indictments against the Riddle Coal Co., of Chattanooga, charging violation of the Lever act in making excessive profits on coal in carload lots. The order was based on a bill of complaint filed by the coal company.

Knoxville—Henry Ford may buy more coal mines in the Kentucky district. According to reports received here, he has offered $2,000,000 for the Creech Co.'s operations on Wallin Creek in Harlan County. These mines are near the Banner Fork operations recently purchased by the Ford interests for $1,500,000.

The seat of this new venture is understood to be in Eastern Kentucky near the West Virginia border, in Pike County, on the Chesapeake & Northern R.R. The railroad is soon to extend its lines over the bridge to be built across the river near Pikesville. This second development is reported to be contemplated by the Pittsburgh Steel Co.

UTAH

Sunnyside—A fire discovered in Mine 2 of the Utah Fuel Co. has caused the sending of a special rescue train from Salt Lake City, containing vice-president and general manager Cowie and two state mine inspectors, among others. At the time of writing the fire is reported as under control. So far no lives have been lost.

VIRGINIA

Lynchburg—The Pinnacle Block Coal Co., recently organized with a capital of $1,000,000, has acquired 3,000 acres of coal properties in the district about Altman. Plans are being prepared for the development of this property with a daily output of 2,000 tons. Henry B. Adams, Lynchburg, is president.

WASHINGTON

Spokane—For the purpose of dealing in wholesale coal throughout the northwest and on the Pacific coast, the Union Coal Co. has been incorporated with a capital of $100,000 and will have its head office in Spokane. The incorporators are R. G. Crocker, F. W. Dewart and Mrs. E. F. Wagoner. A branch office will be maintained in Seattle.

"I have confidence in the importance of Spokane as a center," said Mr. Crocker. "We expect to deal in Montana, Utah and British Columbia coal and will handle some Washington coal."

L. Estell together with T. D. Bevan of Spokane have taken a 44-year lease of extensive coal deposits in Alberta. A dozen Spokane and other men were associated with them, and already are hauling out coal by trucks, pending the completion of a tram line.

Their holdings are a short distance from the properties of the International Coal & Coke Co. and the McGillivray Creek Coal and Coke Co., which are the largest coal-producing companies in which Spokane people are extremely interested.

WEST VIRGINIA

Beckley—It is understood that New York interests have acquired the holdings, plants and assets of the Ingram Branch Coal Co. at Page on the Virginian Ry. If such is the case the consideration was probably large for the Ingram Branch property is considered a valuable one. C. H. Mead one of the successful operators of the Winding Gulf field, organized the Ingram Branch Company.

Welch—One of the largest deals in coal land of the current year in southern West Virginia was that recently consummated under the terms of which D. J. F. Strother of Welch and Howard Eavenson of Pittsburgh secured title to about 30,000 acres of coal land in Mingo and McDowell counties.

Part of the acreage secured is under development and a portion is undeveloped. The coal land was secured from the Lasher estate. The new owners will not take over the acreage acquired until the first of the year.

Morgantown—Further development of the coal territory on Scott's Run and on Robinson's Run, and of the territory in between, is insured by the organization of the Gustan Run Northern Ry., it being the intention of the promoters of the new railroad to link the Guston Run and Robinson's Run section by a line from the mouth of Guston Run to Bowlby to be on the newly organized Monongalia & Northwestern R.R.

The new railroad company has been chartered and has an authorized capitalization of $25,000. A. M. Davis, Ernest H. Gilbert and other coal people were active in the organization of the new company.

New Coal—Mining operations in Cass District of Monongalia are contemplated by Pittsburgh and Beaver Falls business men, who have organized the Bunker Coal Co. of Cassville, W. Va., the new company having a capitalization of $200,000.

Identified with the new company are: Paul E. Berlin, W. R. McAfee, Norman R. McAfee and W. P. Vandervort of Pittsburgh, Pa.; C. E. Moretta of Beaver Falls, Pa.

Fort Defiance—The Fort Defiance Coal Corporation, recently organized with a capital of $150,000, has acquired coal property aggregating about 400 acres, in this district. Plans for development are being arranged, with a daily output of 250 tons a day. Considerable machinery for mining and general operation will be installed at an early date. W. L. Burruss, Ansted, W. Va., is president.

Clarksburg—Apex Coal Co. was organized in Clarksburg, W. Va., to operate mines in Lewis County, capital stock $50,000—incorporators, John B. Heffner, John W. Keister, C. A. Butcher, Frederick F. Butcher, and Presley M. Ireland, all of Clarksburg.

Huntington—The Big Eagle Mining Co. operations in the Triadelphia district of Logan County, dealing in coal products, was incorporated recently at a capital stock of $400,000, Paul Hiner, B. J. Hiner, Herbert Fitzpatrick, D. W. Brown, and C. M. Pickroll, Huntington, are the incorporators.

Charleston—Further Kanawha County development is presaged by the organization of the Fair Seam Coal Co. with a capitalization of $100,000. Prominently connected with the new company are: A. M. Belcher, J. F. Bouchelle, J. F. Davis of Montgomery, Thomas Haggerty of Reynoldsville, Pa.

Much impetus was given to the development of the coal resources of the state during the month of July by the

organization and incorporation of thirty-five resident coal companies, the combined capital of which was $6,280,000. As the total number of new companies incorporated during the state number 120 it will be seen that new coal companies alone represented about one-third of those organized. Many companies awaited the beginning of the tax year before incorporating. Coal companies organized during the month of July were as follows:

Judson Coal Co., Fairmont	$100,000
Deep Hollow Coal Co., Coalburg	$50,000
Field Coal Co., Fairmont	$25,000
Logan-Wyoming Coal Co., Logan	$500,000
Stone Lick Coal Co., Weston	$40,000
E. C. Minter Coal Co., Besoco	$150,000
Ray-Burdette Coal Co., Big Chimney	$25,000
Becco Coal Co., Braeholm	$50,000
American Collieries Co., Charleston	$200,000
By-Product Coal Co., Fairmont	$200,000
Dennison Coal Co., Morgantown	$25,000
University Coal Co., Grafton	$50,000
Mildred Coal Co., Junior	$5,000
Lore Coal Co., Emoryville	$25,000
Indian Run Collieries Co.	$1,000,000
By-Product Pocahontas Co., Big Four	$250,000
Tiger Coal Co., Huntington	$150,000
Barnard Coal Co., Kingwood	$75,000
Twin Mountain Coal Co., Piedmont	$50,000
Winters Coal Co., Parkersburg	$50,000
Dixie Mining Co., Fairmont	$25,000
Emmons Collieries Co., Charleston	$1,000,000
Melrose Coal Co., Fairmont	
Copen Gas Coal Mines, Inc., Bower	$200,000
Riverview Coal Co., Ansted	$10,000
Warnock Coal Co., Barnum	
Gauley-Concord Coal Co., Charleston	$100,000
Kanawha Consolidated Coal Co., Charleston	$1,000,000
Fort Defiance Coal Corp., Ansted	$150,000
La Rue Coal Co., Kingwood	$200,000
Wee Wee Coal Co., War	$10,000
Green Ridge Coal Co., Morgantown	$50,000
Pocahontas Low Vein Coal Co	$25,000
Farnum Coal Co., Clarksburg	$50,000
Dixon Branch Coal Co. of Cirtsville	$25,000

WYOMING

Conroy—The Wyopa coal mine located at Conroy has been sold to eastern capitalists for $110,000. The sale was conducted by C. O. Dunlap, representing the Potter Title and Trust Company of Pittsburgh, Pa., and the buyer was C. D. Scully, who represented the associated bondholders. The sale attracted only a few spectators and there was no competition in the bidding.

Shoshone—The Wyoming Coal, Oil & Refining Co. has been incorporated in Wyoming with an authorized capital of $1,000,000 to develop a deposit of coal nine miles north of Shoshone, on the Chicago, Burlington & Quincy R.R., in Fremont county, Wyo.

Last fall the Howe Oil & Gas Co., drilling for oil, encountered a vein of coal at 270 ft. This vein was afterward prospected with a diamond drill and proved to be 12 ft. thick and of a high grade of bituminous coal.

The men behind the oil company, consisting mostly of people from Lincoln, Neb., then began the organization of the coal company.

F. E. Schaaf, of Lincoln, Neb., is president of the company. J. R. Heagy, Shoshone, Wyo., is in charge of operations. Preparations are being made for the sinking of a small shaft to the deposit to be followed by a larger shaft and the installation of machinery and equipment.

ALBERTA

Brule—One of the leading gold mining companies of Northern Ontario, the McIntyre Porcupine Gold Mines, Ltd., has purchased the property of the Blue Diamond Coal Mines, Ltd., of Brule, capitalized at $1,500,000 comprising 3,300 acres. The mine is producing over 500 tons of steam and coking coal daily.

Equipment has been ordered which will increase the daily output to 2,000 tons. The McIntyre company has also secured an option on the Canadian Coalfields, Ltd. in the same vicinity owning a much larger area stated to contain anthracite and capitalized at $10,000,000.

The Government of Alberta has backed up the efforts of the coal operators of the province this summer in their efforts to develop summer trade in coal, and the result of their joint endeavor is seen in a 50 per cent increase in exportations.

Statistics show that the output of Alberta mines up to the end of July was 3,043,940 tons, compared with 2,068,907 for the same period last year. Operators say that there has been more coal marketed in the same period than any corresponding period in the history of coal production in Alberta.

NOVA SCOTIA

Morien—The Dominion Coal Co., Ltd., Union Street, has started work on the erection of a boiler house, engine room and machine shop for two coal mines to cost $200,000. M. J. McCann, Sydney, N. S., is purchasing agent.

Springville—A beginning was made in the British Empire Steel Corporation's scheme for the development of the Dominion Coal Co.'s properties at Springhill on Aug. 18 by the breaking of the ground for a new mine one hundred yards distant from No. 7 recently opened. The new slope is expected to tap a rich seam of coal from 4 to 6 ft. in width.

Traffic News

Pittsburgh—Suit has been entered in the United States District Court here by the Pennsylvania Coal & Coke Corporation, with principal offices in Philadelphia, to enjoin the Pennsylvania R.R. Co. from favoring certain companies and discriminating against others, the plaintiff included, in the distribution of coal cars, according to the complaint filed. The company avers that it operates 33 mines in various parts of Pennsylvania and its complaint charges that it has not received its just quota of cars. The suit is brought to compel the Pennsylvania R.R. to pro-rate the car supply equitable according to mine ratings. The coal company further charges that it is mining more coal than it can move under existing conditions.

Personals

Floyd S. Chapman, formerly mayor of Huntington, W. Va., later a member of the West Virginia Senate and until quite recently a candidate for clerk of the county Court of Cabell County, W. V., has been named as division manager of the Lake & Export Coal Corporation, of Huntington, with offices at both Bluefield and Beckley, W. Va.

Colonel Wm. Leckie, who is interested in quite a number of coal companies in southern West Virginia, will probably move his headquarters from Welch, W. Va., to Bluefield, W. Va., where he owns property. Colonel Leckie plans to build a new home at Bluefield.

Walter J. Davis of Monongah, W. Va., is the new manager's field representative for the West Virginia division of the Consolidation Coal Co. Mr. Davis has come up from the ranks, being at the time of his promotion mine foreman at mine No. 43 of the Consolidation company, at Monongah.

John W. Meyers, for four years with the Security Coal & Mining Co., at Duquoin, Ill., and for the last year with the Southern Gem Coal Co., both with offices in Chicago, has accepted a position as mine manager for the Illinois Sixth Vein Coal Co., operating at Cutler. The company has offices at Chicago and Pinckneyville, Ill., and operates several mines in the Duquoin section.

S. A. West, formerly with the Consolidation Coal Co., and the Hedstrom-Schenck Coal Co., has joined the forces of the Mitchell Dillon Coal Co., of Chicago.

William H. Greenwood, superintendent of the construction work of remodeling the old No. 5. mine at Duquoin, Ill., and formerly president of the Greenwood Coal Co., and the Greenwood-Davis Coal Co., recently was taken suddenly ill with appendicitis, and was rushed to a hospital in St. Louis. Attending physicians announced that he would recover.

William Gates, formerly real estate agent of the H. C. Frick Coke Co., whose headquarters were at Pittsburgh, Pa., has been chosen as the successor of the late D. H. Coble, as secretary of the company. Mr. Gates is a graduate of Lehigh University, of the class of '88, and has occupied his present position for a number of years.

Henry M. Payne, formerly assistant to the president of the Bertha Coal Co., has resigned, to become general manager of the Douglass Barnes Corporation, with offices in the Barnes Building, 53rd St. and Fifth Ave., New York City. He expects to begin his new duties on Sept. 20. Mr. Payne is a director in the Tidewater Coal Exchange and the Wholesale Coal Trade Association; he is treasurer of the latter. He is also on the Export Committee of the American Mining Congress.

B. H. Stockett, superintendent for Locust Mountain Coal Co. at Shenandoah, Pa., was recently promoted to general manager for the C. M. Dodson operations in Shenandoah, Beaver Brook and Shamokin districts, with headquarters in Shenandoah.

C. M. McCrecken, of Taylorville, Ill., has been made the new division superintendent of the Peabody mines in Williamson and Franklin counties, to fill the vacancy caused by the death of Phillip White, who lost his life while fighting a fire in No. 18 mine of the Peabody company. Mr. McCrecken will make his headquarters at Marion.

F. R. Wadleigh has been appointed export sales manager for Western Dodson & Co., Inc., vice **J. H. Davison** resigned. **J. W. Sands** has been selected as his assistant.

Carl Robinson, for some time connected with the Boone County Coal Corporation of Sharples as general superintendent, has resigned to become associated with the Rock House Coal Company at Blackie in the Hazard field of Kentucky. The Rock House Coal Co. is a subsidiary of the Central States Coal Co. of Toledo, Ohio.

Coming Meetings

Coal Mining Institute of America will hold its annual meeting Dec. 8, 9 and 10, 1920, in the Chamber of Commerce Auditorium, Pittsburgh, Pa. Secretary, H. D. Mason, Jr., Chamber of Commerce Bldg., Pittsburgh, Pa.

The Sixth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York City, Sept. 20-25. The Fuel Economy Division has been added this year.

American Mining Congress will hold its annual meeting at Denver, Col., Nov. 15. Secretary, J. F. Callbreath, Munsey Building, Washington, D. C.